

Model Cars Monthly



MODEL PUBLICATION

KYOSHO TOMAHAWK

-do a hatchet job on the competition



aluminum alloy 3-part chassis • High power Mabuchi RS-540 motor
 arm suspension on all four wheels with diecast aluminum parts for light
 weight and oil-filled shock absorber units for performance
 and sealed reduction gearbox with built-in differential • Special speed
 aluminum bearings for maximum effectiveness • Kroyd rear tires on
 wheels for maximum grip and roadholding • Strong polycarbonate body for
 crash resistance • Decorative stickers and driver for realism

1:10 SCALE MODEL

AD RAC
ELECTRIC POWERED RACING

トマホーク



**PHOTO-ACTION
COMPETITION**
Your chance to win
a Sanwa radio
system

STARTING POINT:
Get to grips with
electric buggy racing
Slot car acceleration
-speeding ahead...



VOLVO GLOBETROTTER



NEW KENWORTH K100 AUSTRALIA



PETERBILT 359

Cut away the sprue and the roar of the exhausts could almost deafen you.

If nothing quite beats the smell of the open road, you'll only be satisfied with the realism of Revell. No-one can match our minute attention to detail, our huge range, or the painstaking accuracy of our modelling. As you'll find for yourself when you truck along to your nearest stockist.



Revell

Model Cars Monthly

(I.R. £1.48½)

June 1984
Volume 4 Number 5

Publisher TONY DOWDESWELL
EDITOR BILL BURKINSHAW
Assistant Editor LEWIS ECKETT
Art Editor NICK HOWELL
Advertisement Director M. GRAY
Editorial Director R. G. MOULTON

Cover

Is this what is meant by an 'out of the box' winner? Certainly the Kyosho Tomahawk fits this category as revealed in our Track-Test on page 18.

Model Cars is sold subject to the following conditions that it shall not without the written consent of the publishers, be lent, re-sold, hired out or otherwise disposed of by way of the Trade at a price in excess of the recommended maximum price and that it shall not be lent, re-sold, hired out or otherwise disposed of in a mutilated condition or in any unauthorised cover by way of Trade, or affixed to or as part of any publication of advertising itinerary or pictorial matter whatsoever.

Model Cars (ISSN 0260-762X) is published monthly by Model & Allied Publications, P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS, England. Tel: Hemel Hempstead (0442) 41221. Distribution to North American hobby and craft stores, museums and bookshops by Bill Dean Books Ltd., 166-41 Powells Cove Blvd., Post Office Box 69, White-stone, N.Y. 11357, USA. Tel: 1-212-767-6632.

Advertisement Offices: P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Hertfordshire HP2 4SS. Tel: 0442 41221.

Subscription: UK Sterling £15.00. Overseas £18.00. US\$27.00.

OTHER HOBBY AND LEISURE TITLES INCLUDE:

RADIO CONTROL MODELS & ELECTRONICS, AEROMODELLER, MODEL BOATS, SCALE MODELS, MILITARY MODELLING, MODEL ENGINEER, MODEL RAILWAYS, WOODWORKER, POPULAR CRAFTS, 35mm PHOTOGRAPHY, MOVIE MAKER, CLOCKS, RADIO MODELLER, SPACE VOYAGER

Model Cars is printed in Great Britain by Leicester Printers Ltd., The Church Gate Press, P.O. Box 20, 99 Church Gate, Leicester LE1 9FR. Mono Origination by Multiform Photosetting Ltd., Cardiff, for the Proprietors and Publishers, Model & Allied Publications (a member of the Argus Press Group). Trade sales by Argus Press Sales & Distribution Ltd., 12-18 Paul Street, London EC2A 4JS.

Contents

SEEN & HEARD	8
GEARBOX — new products for the model car racing hobby	10
ROUGH RIDERS — Off-Road news and views by Bill Burkinshaw	12
PHOTO-ACTION — winning results of readers' photo competition	16
TRACK TEST — Bill Burkinshaw puts the Kyosho 'Tomahawk' through its paces	18
ON THE CARPET — Pete Winton details the 1/12th scale racing scene	20
STARTING POINT — Guide to electric buggy racing	24
2-STROKE TERMINOLOGY — R/C car engines explained	30
ENGINE TEST — Mike Billinton assesses the OPS .21 rear exhaust	32
TRACK TEST — Pete Winton tries the 'Clubmans' 1/12th circuit-racer	36
TAKING STOCK — Mike Chilvers, 'ovalling around'	38
CONTEST CALENDAR	42
SLOT CAR ACCELERATION — where to go slot racing	44
SG CHECKLIST — Bob Errington gives some tips from the top	46
RACING ROUND-UP	50

Editorial

Now that the variable British weather is beginning to take a turn for the better (it is... believe me) we can expect a great upsurge in interest in the outdoor forms of R/C car racing. Already BRCA National Championship Meetings have been held for 1/10th and 1/8th scale buggies and these were well attended. Both forms of racing will undoubtedly attract a great deal of entries for every race meeting that is run. With this in mind it is of paramount importance to get your entries in early. Race organisers can only accommodate a finite number of people and are instructed to accept entries on a first come, first served basis. Sufficient time before the event must be allowed to give race organisers a chance to sort heats, arrange facilities and send back confirmations. Not many clubs can afford to spend money on trophies without the entry fees so give them the support early on. Many of the clubs organising meetings this year will be doing so for the first time. It won't take much to put them off running one next year if they have a bad enough experience with their first.

Drivers should realise that enough meetings are being run this year to allow everybody a chance at attaining the maximum points aggregate possible. The way the system has been worked is so that travelling fair distances will be necessary but will be kept to a minimum. Even so 'away' meetings can be turned into very enjoyable events if the cost is shared amongst other drivers. Overnight accommodation can be arranged by the organisers if you give yourselves and them enough time.

To all drivers participating in this year's BRCA Off-Road Championship, have a good year, but more importantly, enjoy yourself!

PO Box 35,
Wolsey House, Wolsey Road,
Hemel Hempstead, Herts HP2 4SS
Tel: (0442) 41221

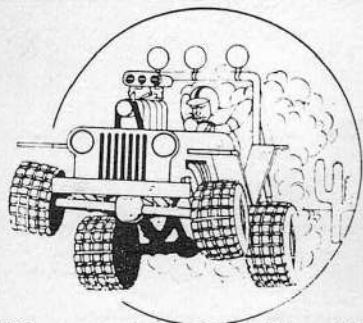


Model & Allied Publications

A division of Argus Specialist Publications Ltd.

G.K. MODELS

BOURNEMOUTH



THINK TAMIYA — THINK G.K. MODELS

Great prices on Tamiya package deals . . .
DEAL INCLUDES:
Tamiya kit as listed, Acoms Mk11 r/c unit, trickle charger, ni-cad battery for the engine, and now includes a set of HP7 size batteries for the transmitter and receiver.

KIT	Price	KIT	Price
ROUGH RIDER	£136.95	SAND SCORCHER	£136.95
HOLIDAY BUGGY	£102.50	SAND ROVER	£102.50
FORD RANGER	£136.95	SUPER CHAMP	£152.95
WILD WILLY	£132.95	WILLYS WHEELER	£132.95
AUDI QUATTRO	£129.95	SUBARU BRAT	£110.50
LANCIA RALLY	£110.50	OPEL ASCONA	£129.95
FROG	£128.95		

PLEASE NOTE POST & PACKING ON ABOVE DEALS £3.50 PER DEAL, PRICE INCLUDES INSURANCE COVER.

FOR SINGLE KIT PRICES PLEASE RING FOR OUR LOW, LOW PRICE . . . SPECIAL DEALS AVAILABLE ON THE FOUR WHEEL DRIVE RANGE ALSO.

OUR NEW UPDATED CATALOGUE IS NOW READY . . . SEE DETAILS ELSEWHERE IN THIS ADVERT FOR YOUR COPY . . .

OUR STOCK OF SPARES FOR THE TAMIYA RANGE IS NOW £17,500 IT IS VERY RARE WE ARE OUT OF STOCK OF ANY PARTS.

A small selection from our catalogue . . .

SUPER CHAMP		WILD WILLY/AUDI QUATTRO	
5121 F/wheels, tyres pr.	£6.60	SPWE7 Long axle tube ..	£2.20
SPCS1 Chassis	£7.20	SPW1 Diff. Gear Bag	£2.75
SPCK9 Rear arm	£3.20	SPWE19 Resistors .. pr.	£1.65
SP1155 Servo saver	£3.50	SPW14 Parts G W/Willy	£3.90
SPC7 Switch Arm Bag ..	£3.75	SPB1 Bumper A/Quattro	£3.30
SPCD8 R. Bumper Stay ..	£3.40	SPP13 Mech./Box A/Quat	£9.99
SPCD9 R. Bumper	£2.20	SPQ5 Pressed parts bag	
SPCS3 Mechanism deck	£7.70	A/Quattro	£5.50
5184 Body parts set	£14.50	SPQ1 2 Front tyres	£5.95



LOW, LOW PRICES ON KYOSHO CARS

SCORPION	£67.96
BETLE	£67.96
CACTUS OFF ROADER	£39.96
TOMAHAWK	£78.00
JEET INDIANA 4WD ..	£103.96
POST & PACKING ON ABOVE KITS £2.25 PER KIT.	

SPECIAL PACKAGE DEAL PRICES AVAILABLE ON KYOSHO RANGE . . .

DEAL INCLUDES:

FUTABA RADIO UNIT FP-2MR (with servo reverse) NI-CAD BATTERY FOR THE ENGINE, TRICKLE CHARGER, HP7 SIZE BATTERIES FOR THE TRANSMITTER & RECEIVER, PLUS THE KIT AS LISTED.	
SCORPION	£123.55
CACTUS	£95.70
TOMAHAWK	£135.95
BETLE OFF ROADER	£123.55
JEEP INDIANA 4WD ..	£159.70

PLEASE NOTE POST & PACKING ON ABOVE DEALS £3.50 PER DEAL (ALSO INCLUDES INSURANCE COVER).

FUTABA

FUTABA 2 CHANNEL RADIO SET MODEL FP-2MR (with servo reverse) £39.95 price includes P&P	
FUTABA 4 CHANNEL RADIO SET MODEL FP-4L (with four servos) £99.95 price includes P&P	
FUTABA 4 CHANNEL AS ABOVE BUT THREE SERVOS £89.95 price includes P&P	

STANDARD MICRO SERVO MODEL P-S128 EACH £12.70 price includes P&P

SERVO EXTENSION LEAD P-AT2161	£2.25
SERVO GEAR SET S28/128	95p
SERVO LEAD P-AT2165	£1.75
CRYSTALS 27AM RX STANDARD	£2.00
RX SPLIT	£2.25
TX STANDARD	£2.45
RX SPLIT	£2.45

WE CAN QUOTE FOR ANY OF THE FUTABA RANGE OF RADIO UNITS. PLEASE PHONE FOR YOUR REQUIREMENTS. WE ALSO CARRY STOCKS OF SPARES FOR THE KYOSHO RANGE . . . WHICH ARE ALL INCLUDED IN OUR NEW CATALOGUE.

ACOMS SPARES . . . ACOMS SPARES . . .
TRANSMITTER (no aerial or crystal) with free colour ribbon, state colour required (Mk. 2 version) £9.95
RECEIVER (Mk. 2 version) no crystal

SPECIAL PARTS . . . MOTORS . . . ETC . . . ETC . . .

A small selection of our range taken from our catalogue.

TRI-FLOW LUBRICANT 90g aerosol	£2.65
TRI-FLOW LUBRICANT 30cc Dropper	£1.65
YOKOMO off road MOTOR, MASTER BLASTER	£33.00
T3 MOTOR RS 540 SUITABLE FOR R/RIDER ETC.	£13.60
BRASS MAIN GEAR TAMIYA 4WD. CARS	£12.25
BEARINGS SHIELDED 5mm x 11mm TAMIYA RANGE	each £1.50
1/8" DURAL CHASSIS FOR THE R/RIDER ETC. . .	£7.95
1/8" DURAL CHASSIS FOR THE S/CHAMP	£8.25

Lots more available in our spares list.

NEW . . . NEW . . . NEW . . . NEW . . .
CATALOGUE . . . CATALOGUE . . .
OUR NEW UPDATED CATALOGUE IS NOW READY . . . OVER 60 PAGES . . . PACKED FULL OF SPARES, MOTORS, RADIO UNITS, CAR PRICES, WHEELS, TYRES, NI-CADS, SPEED CONTROLS, LIST INCLUDES TAMIYA & KYOSHO RANGE . . . PRICE NOW IS 95p PLUS P&P OF 50p = TOTAL £1.45

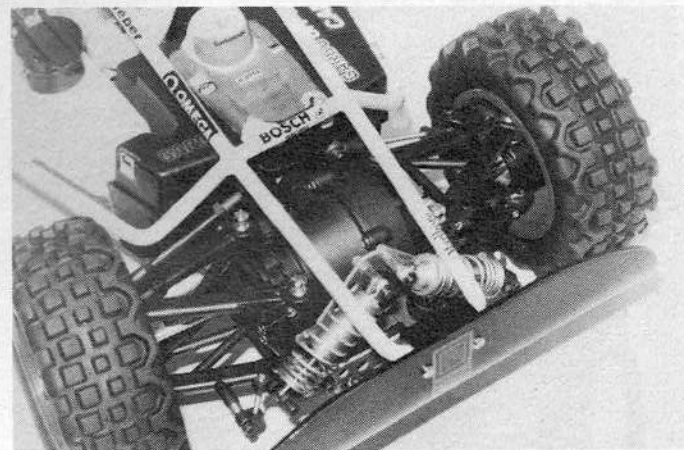
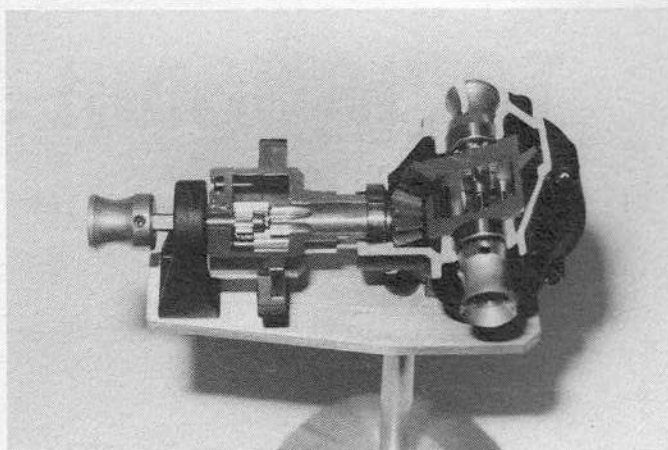
PLEASE NOTE: ALL OFFERS SUBJECT TO AVAILABILITY

G.K. MODELS (BOURNEMOUTH)
390 HOLDENHURST ROAD
BOURNEMOUTH BH8 8BL
TEL: 0202 34007



WE TRY TO DESPATCH ALL MAIL ORDERS THE SAME DAY. SHOULD DEMAND ON ANY ONE ITEM EXCEED STOCK LEVEL & YOU DO NOT WISH TO WAIT FOR YOUR ORDER, PLEASE ENCLOSE A S.A.E. & YOUR CHEQUE/ORDER WILL BE PROMPTLY RETURNED. ORDERS OVER £10.00 ARE P/P FREE, EXCEPT WHERE OTHERWISE STATED. UNDER £10.00 PLEASE ADD 50p TO THE ORDER VALUE. ANY ENQUIRIES PLEASE ENCLOSE A S.A.E. REPLIES CANNOT BE DEALT WITH OTHERWISE. OVERSEAS ORDERS PLEASE ENCLOSE 2 IRC FOR QUOTE. ORDERS SENT ABROAD WILL BE VAT FREE — P/P AT COST. OVER THE COUNTER * SCHEME ALSO ARRANGED.

Let us give YOU just **4** **WHEEL DRIVE** **GARBO**
 The Off-Road car with **3** **Reasons why YOU should choose** **HEPARD**
 Which means that YOU **2** **DIFFERENTIALS**
 This has to be YOUR **1** **Full years of RACING development**
Things to add — RADIO & ENGINE
Can race with the best as an equal
Box with READY BUILT car
derful opportunity for around £230.00



ENCLOSED TRANSMISSION
PLEASE SEND A LARGE S.A.E.

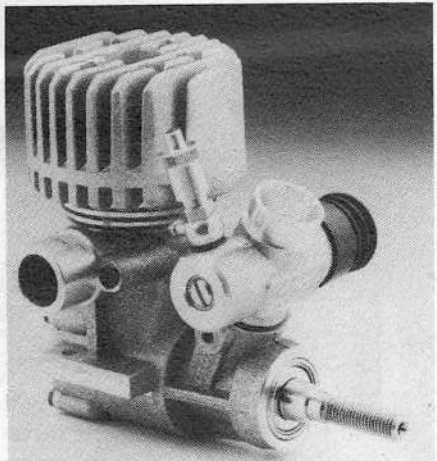
U.K. DISTRIBUTION
 VIA P.B. RACING OR
 TED LONGSHAW
 MODEL CARS
 7 WARREN ROAD
 CHELSFIELD
 ORPINGTON, KENT
 Tel: (0689) 55313

FRONT SUSPENSION
FOR MORE INFORMATION!



21
BUGGY

24/212C SIDE EXHAUST 7mm CARB.
24/313F REAR EXHAUST 9mm CARB.
(SPECIAL GARBO CRANKSHAFT)



DESIGNED & MANUFACTURED
SPECIFICALLY FOR OFF-ROADERS



PB17 £179.50



If you
 Would like
 to receive all
 the latest news
 join the Exciting
 PB Owners Club
 Send a Postcard
 with your name
 and address



PB racing products Ltd.

Downley Road, Havant, Hampshire, PO9 2NJ, England
 Telephone: Havant (0705) 471774 Telex: 86736 SOTEX G. for PB Racing

SUPPORT YOUR
 NATIONAL
 ASSOCIATION
 JOIN THE B.R.C.A.
 6 PARK WAY
 QUEENSBURY
 BRADFORD
 BD13 2HJ

Racing Improves the Breed.....

Just as Grand Prix cars improve year by year, so has racing experience improved the R/C electric off-road car. The accumulated knowledge KYOSHO have gained from the world beating Scorpion has led to the development of a 'NEW' off-road racer.....

TOMAHAWK



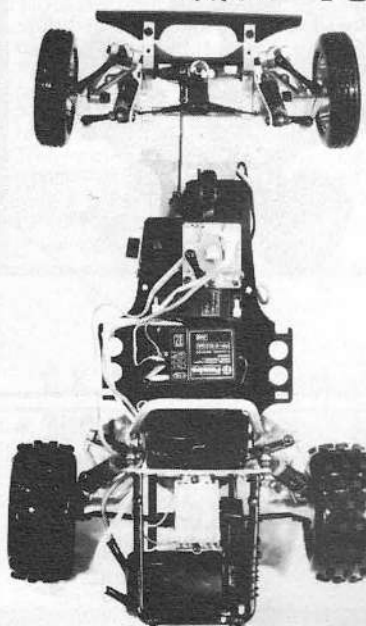
Race 'TOMAHAWK'

and do a hatchet job on the competition !

- Phenomenally light 1450gms (51 ounces) Ready to run.
- Strengthened chassis.
- Die cast aluminium swing arm suspension with oil filled shock absorbers on all wheels.
- Needle roller bearings on rear drive shafts for low friction drive.



- Top performing RS540 motor.
- Pre-assembled and sealed gearbox with built-in differential including metal cyclic gears.
- Special speed control system with aluminium heatsink for maximum efficiency (N.B. variable reverse speed).
- New R/C installation with quick change radio plate.



THE BEST
COMES FROM

RIPMAX



LEOPARD 4 WHEEL DRIVE

1/8 - OFF ROAD

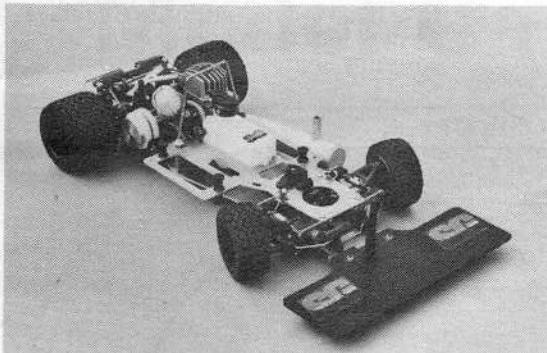


LEOPARD 4 - ART. 4900
LEOPARD 2 - ART. 4925

The 4-Wheel-Drive-Model was specially developed for competitions; however, because of its simple assembling and of its driving facility, it is suitable for amateurs and novices, too. The technical card shows its superb features: wide suspension excursion, very low centre of gravity, reduced advancing resistance (to do all shafts mounted on ball bearings) and great ability in overcoming all obstacles. The aggressive styling of the model makes it very attractive. The transmission is performed by three differentials, shafts and cardans, supported by ball bearings. The four wheels have a parallelogram suspension system with 4 hydraulic shock-absorbers and adjustable springs. If requested, two extra shock absorbers can be mounted to the model. The conical gears (front and rear) can work at their best, being contained in a tight box. The box also contains the pilot, of Lexan, specially designed to prevent dirt (mould and sand) from reaching the central transmission and the steering mechanisms. The break-gas control is located in the centre of the chassis, thus making every adjustment operation very easy. In addition, the fitting of two steering controls with two servo-saver is foreseen. The chassis is made of high resistance light alloy and drilled with extreme precision. The high resistance steel roll bar is prepared for the assembling; the easy replaceable reduction gears are calculated for every kind of ground (9:1 - 12,5:1). The model assembly is very easy and quick, thanks to the precision of the different component parts as well to the very clear assembly drawings. Control and engine are not contained in the box.

LEOPARD 4 £225.00

LEOPARD 2 (inc. diff.) £149.95



COLUMBIA MK2 "83"

CHAMPION OF EUROPE

KIT PRICE £169.95 INC. VAT.



ACCESSORIES AND SPARE PARTS

SG 12 volt Starter	£27.95	SG Air Filter with Rain Cap	£3.25
SG Glow Plug Supply	£19.95	SG Leopard Tyres (Pair)	£7.95
SG Starter Box	£34.50	SG Leopard Shock Absorbers with Springs (Pair)	£10.66
SG Starter Wheel	£4.95	SG Fast Fill Fuel Tank	£4.95
SG Fuel Filler Bottle	£1.95	SG 1/8th Scale Lexan Bodies	£8.95
SG Glow Plug Connector	£2.50	SG Flexan Spray Paint (13 colours)	£2.25
SG Air Filter	£2.95	SG Tool Box	£37.50

DISTRIBUTED BY

PHIL GREENO

models Ltd

9 Village Way East, Rayners Lane, Harrow, Middx Tel: 01-866 7770

Club Chat

One again a jam-packed clubs section this month, which just goes to show how widespread and healthy R/C Car racing for all varieties really is.

The **North Devon Radio Controlled Model Car Club** has reformed itself after a prolonged rest. Basically the club is involved in 1/8th scale I.C. circuit racing although other activities feature in the club's interest.

The club is at the 'grass roots' of all circuit racing being car-park based and fairly nomadic. If membership increased there is nothing they would like better than to design and build a permanent circuit in the centre of North Devon — namely Barnstaple.

Club Championships are run for Formula and Sports GT classes over 6 or 10 week periods. Trophies are awarded to, at least, the first three places. Lesser placings get Trophies if club funds allow.

Every Sunday morning a new circuit is laid down using lengths of fire hose, this tremendous variety of circuit provides driving experience from short, twisting courses to very long fast straight types with long sweeping curves.

The club needs to travel to find a 'proper' circuit, the excellent Mendip circuit being the nearest. In event of away 'gigs' they share travelling expenses by seeing how many people and car bits can be crammed into the smallest number of members cars.

Nearly all members drive *PB* cars of one sort or another including 'Omegas', 'Alphas' and 'Novas'. Some scratchbuilt specials using *P.B.* parts also feature, most noteworthy is Dave Abbot's 'I.S. Bishop'.

Anyone requiring further information should contact Bob Stiles at 52 Elizabeth Drive, Tower View, Barnstaple, N. Devon EX31 3AJ. Bob is also keen to hear from other club's who would like a fixture against them on a home and away basis.

I. R. W. Francis writes on behalf of the **Swansea Radio Car Club** to inform of their activities in Southern Wales.

The club was formed on February 1st, 1982 to promote the sport of 1/10th scale electric buggy racing in the Swansea area. At present they have 30 members with between 17 and 24 turning up every Sunday morning at the King George 5th playing fields on the Mumbles Road in Swansea. Permission has been obtained for a semi-permanent track to be built in the car park at the rear of the cafe and changing rooms for close racing on a red ash surface (very slippery). Club hours are 9.30a.m. until 1.00p.m. every Sunday morning with racing complying to

BRCA rules (£10 motor limit). Cafe and toilets are at hand along with ample car parking space adjacent to the track. Mainstay of the club is the three-monthly driver's championship, consisting of four 6-man divisions with two up, two down promotion and relegation. Other club activities include hill climbs (alongside the track), team endurance races (1 hr), pursuit racing, novelty events, etc. Each member receives a calendar every three months.

The club advertises itself by placing posters in local model shops and also by placing information slips in new kit boxes in these shops. They have given demonstrations at school fetes and have also been featured in a Channel Four Wales T.V. sports programme. Finally, the club will be racing in the new, 'West Wales buggy league', and hope to do well.

Anyone interested in joining should; contact I. R. Francis (0792) 205166, come to the track on a Sunday morning or see our posters at *Swansea Models and Hobbies* or *Roy Leighton Models*, Carmarthen. Subs are 30p per week with annual subs of: Senior £5, under-16's £2.50. Everyone is welcome.

Terry Sadler of the **Surrey Radio Control Car Club** has asked for a brief mention of his club's current racing state. They cater for 1/12th scale electric circuit racers and 1/10th scale buggies. Hopefully they will be moving to new premises soon where they can begin building an Off-Road circuit. For further information contact Terry Sadler at 13 Morningside Road, Worcester Park, Surrey. Tel: 01 337 2921.

The **Dereham Electric R/C Car**

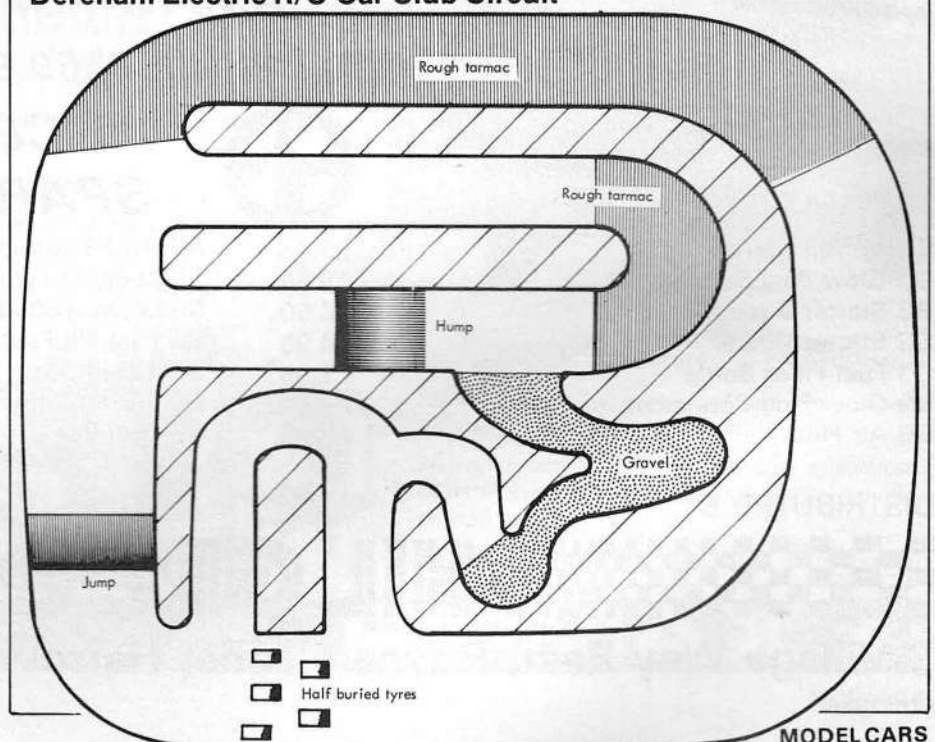
Club was formed about two years ago to race 1/10th scale electric buggies. They have use of a variety of venues to hold club meetings on, with various classes being run, Hill-climb, circuit racing and autocross. The club is hoping to run some open meetings this year and wish to attract new members as a result. Anyone interested should contact David Knock at 1 Morse Close, Gt. Witchingham, Norfolk. NR9 5QQ. Tel: (060544) 566.

The **North East Radio Control Car Club** is urgently looking for new members to race 1/8th scale I.C. circuit racers and 1/10th and 1/8th scale buggies. Since the closure of the Lampton Park circuit the club has raced at a local school, although a suitable piece of land is being searched for, to produce a suitable Off-Road circuit. Prospective members or offers of help should be directed to: Alan Clark, 10 Elsdon Gardens, Dunston, Gateshead, Tyne & Wear. Tel: (0632) 607602.

The **Porchester Rough Riders Off-Road Club** meets every Sunday morning between 9.30 and 12.30 to race 1/10th scale electric buggies at Porchester Community Centre, Westlands Grove. The club is in its third year of existence and has a good racing membership. They race to BRCA rules and hold one day meetings every few months, plus putting on shows at local fetes. For further details, contact S. Jewer, 45 Merrivale Road, Hilsea, Portsmouth, Hants. PO2 0TJ.

The **Thatcham R/C Model Car Club** have been racing 1/12th circuit racers for over four years now and are currently enjoying the facilities of

Dereham Electric R/C Car Club Circuit



BEATITLES



£250 INSTANT CREDIT

Subject to status. Please ask or write for details. Typical APR 29.8 variable. Finance provided by Welbeck Cardholder Services Ltd., 69 Clarendon Rd., Watford, Herts.

Licensed Credit Brokers

Europe's largest selection of Model Cars. Everything from die-cast under £1 to car kits over £250, including R/C. See us first.

HOLBORN 202 High Holborn, London WC1V 7BD 01-405 6285/8592
FINCHLEY 21/23 Ballards Lane, Finchley Central, London N3 1XP 01-349 2257
LEWISHAM 210 Lewisham High Street, London SE13 6JP 01-852 0449
SOUTHGATE 10 The Broadway, Southgate, London N14 6PN 01-886 4258
WOOD GREEN 104/106 High Road, Wood Green, London N22 6HE 01-888 0937
BIRMINGHAM 26 South Mall, Bham Shopping Centre, B2 4XD 021-643 8604
BLACKPOOL 19 Hounds Hill Centre, Victoria Street, FY1 4HU 0253 26461

BRIGHTON 4/8 Dyke Road, BN1 3FE 0273 776626
BRISTOL 17/19 Penn Street, BS1 3AW 0272 20259
CARDIFF Northgate House, Kingsway, CF1 4AD 0222 397645
CROYDON 135A North End, CRO11TN 01-688 1585
KINGSTON 30/32 Eden Street, KT1 1EP 01-549 5464
LEEDS 16/18 King Charles Street, LS1 6LT 0532 456611
LIVERPOOL 36/37 Dawson Way, St. John's Centre, L11 1J 051 709 0799

MANCHESTER 4/6 Brown Street, off Market St. M2 1EE 061 834 0229
NEWCASTLE 43/47 Pilgrim Street, NE1 6DE 0632 324161
NOTTINGHAM 3 Mount Street, NG1 6JW 0602 411693
ROMFORD 7/11 High Street, RM11 1JU 0708 24283
SHEFFIELD 38 Pinstone Street, S12HN 0742 77664
SOUTHAMPTON 114 East Street, SO1 1HD 0703 24843
WATFORD 70 The Parade, High Street, WD1 2AW 0923 27563

*MAIL ORDERS TO SOUTHGATE

Primafelt carpet and computerised lap scoring — race night is every Friday from 7.00 to 10.00 p.m. at the Turnpike School Hall, Gaywood Drive, Newbury. Racing is to BRCA standard class rules with all tyre additives bar wintergreen being allowed. The school has a large sports hall which the club hopes to use as the venue for a 'mini-open' event later this year.

More details can be obtained from Sean Magee, 1 Danvers Close, Thatcham Farm, Thatcham, Berks. Tel: (0635) 68059. Finally, the **Remote World Off-Road Club** have produced their first Newsletter since its official formation. Steve Dean is the club secretary and as such has set out some proposals for the club members.

These include hire of the Gatehampton Farm race venue. Membership fees, circuit preparation and contest calendar. The Remote World circuit at Goring on Thames is one of the best 1/8th scale I.C. off-road Circuits in the Country and hopefully with a concerted 'team' effort on behalf of the members, could become *the* best.

Model Cars Event Coupon

Name of Club.....

Competition Secretary.....

Address

Tel. No.

Track Location.....

Class of Racing

Entry Fee Date(s) of Event.....

Event Specification.....

Facilities available.....

Gearbox

Tamiya 'Frog'

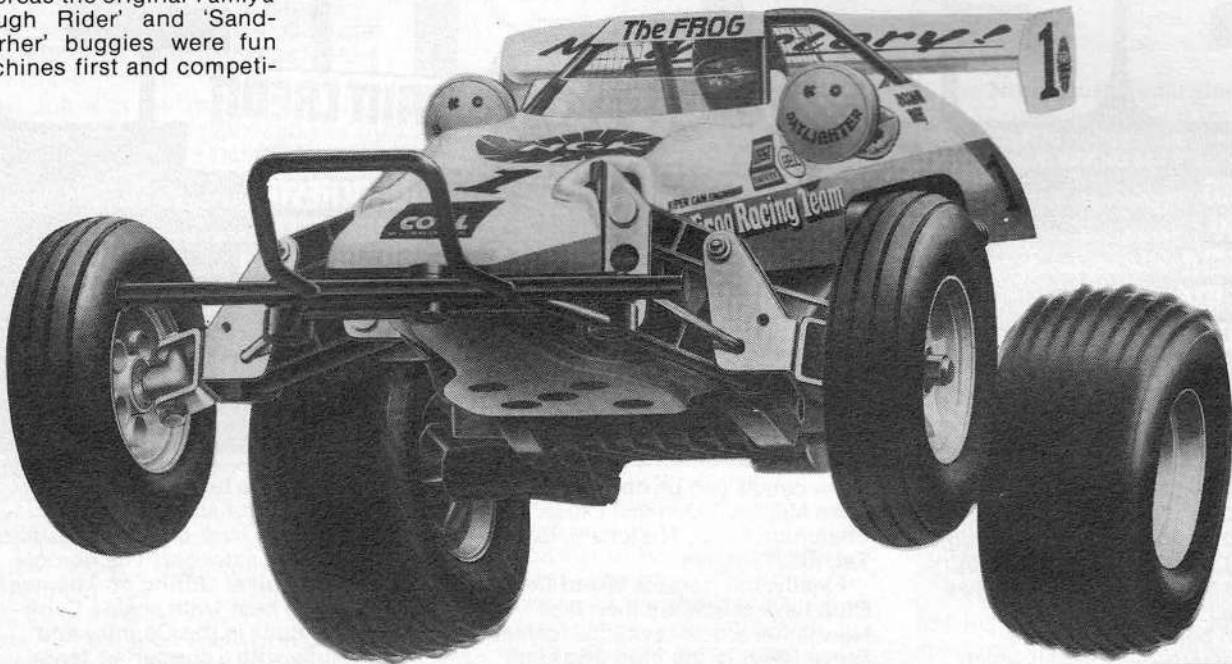
The Tamiya Manufacturing Corporation of Japan have really got the competition bit between their teeth with the introduction of their latest 1/10th scale electric buggy, the 'Frog'. Whereas the original Tamiya 'Rough Rider' and 'Sand-scorcher' buggies were fun machines first and competi-

tion winners second the 'Frog' is a dyed-in-the-wool racer. Although the 'Frog' has the same basic chassis design as the 'Subaru Brat' buggy, various uprating components now feature as standard kit items. These include a geared type

differential and ball-races for the drive outputs, oil filled dampers to give smoother suspension. Variable gear ratios to suit different circuits, polycarbonate racing bodyshell, Supergrip off-road tyres and 540 size motor.

The usual Tamiya presentation and detailed instructions will ensure that the 'Frog' will be a delight to build and drive whether in competition or simply for fun.

Available from all good model shops. Price £80.00.

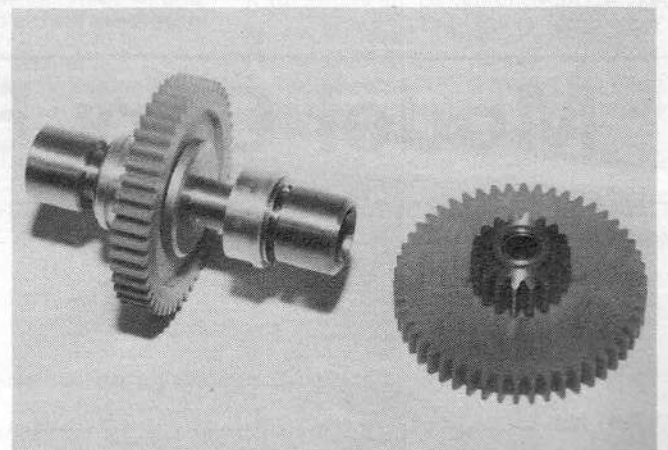
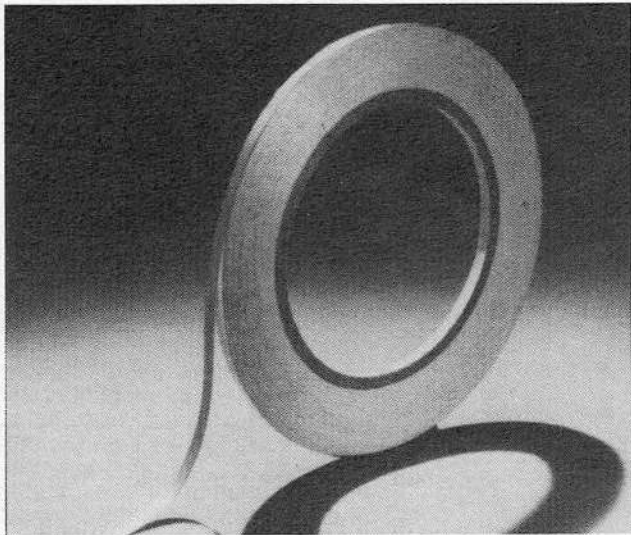


Copperfoil Tape

Copperfoil Enterprises of 141 Lyndhurst Drive, Hornchurch, Essex are currently production copper tape suitable for a wide range of electronic uses, including slot car track assembly. Copperfoil Tape is a thin, pure copper tape backed by a special hi-tack adhesive formulated to withstand high tempera-

tures. The tape is suitable for low voltages up to 24V and has a current carrying capacity of 5amps but is not recommended for mains voltage. Being pure copper, heat dissipation is excellent and therefore the tape can be bonded to almost any insulated surface (even paper) and soldered connections made.

Available in 4mm, 4.75mm, 6mm and 8mm width, 33 metre rolls.



Nodis Racing Developments

As mentioned last month, Nodis Racing Developments are now in production of their replacement differential for the highly popular Tamiya 'Subaru Brat' 1/10th scale electric buggy. Photographs of this item appear here, along with a Compound gear also suited for the 'Brat'.

The differential is manufactured to Nodis' usual high standards and features a Tufnol centre gear, hardened steel output shafts and four ball races. The diff can also be adjusted to give varying amounts of slip by

tightening the compression spring to promote greater or less pressure on the thrust races and ball bearings.

The compound gear will be produced so that the large Tufnol gear can be interchanged for different tooth sizes, thus varying the possible gear ratio.

Finally, Nodis are also to begin production on a differential for the Mardave 'Apache' 1/10th electric buggy which will be identical in construction to the 'Brat' version. Also, toothed belt motor pinions for the Hirobo 'Rock'n'City' are planned.

For further details contact Nodis Racing Developments, 28 Brunswins Close, Wickford, Essex.

Book Reviews

Although primarily a magazine dedicated to actual 'racing' vehicles 'Model Cars Monthly' is fortunate enough to receive books and publications on other aspects of the model car hobby.

The first Automobile Year Book of models was greeted as 'the most anticipated model car book of all time' and the second volume received just as much praise, but this year's edition will surely surpass the others.

All the regular features are included, plus articles on Italaeri's Bugatti Royale Coupe Napoleon, Tamiya's Suzuki 1100, Katana, large scale metal kits, and much more!

This excellent volume is superbly illustrated throughout, largely in colour and will be of strong interest to modelling enthusiasts.

Automobile Year Book of Models 3 is published by Editions 24 Heures of Switzerland on February 27. It is distributed in the UK by Patrick Stephens Ltd., of Bar Hill, Cambridge. The book contains 168 pages with 250 colour and black and white photographs. 12in. x 9in. (306mm x 152mm). Hardcover ISBN £18.95 net.

Parma Accessories

Parma International of Ohio, USA continue to supply the sort of equipment demanded by British R/C car enthusiasts.

The motor heatsink is currently finding favour amongst 1/10th scale buggy

racers in an attempt to increase motor performance. The Parma version is produced in anodised alloy with cooling fins for maximum heat dissipation.

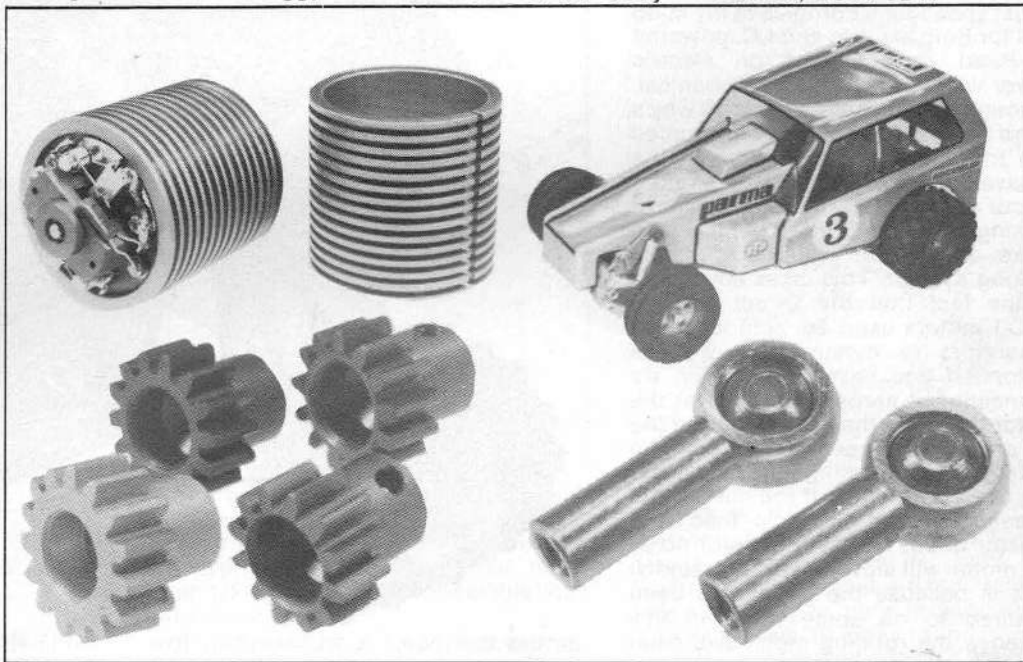
Parma lightweight motor pinions are ideal for 1/10th and 1/12th racers and are colour coded according to tooth size.

The latest Parma body-

shell is this 1/10th scale AMC Spirit Modified body moulded in polycarbonate. Available clear or painted.

Parma adjustable rod-ends will keep your R/C linkages in place when the going gets rough.

For further details contact: Helger Racing, 72 Lauderdale Tower, Barbican, London, EC2Y 8BY.



Stockton Buggy Accessories

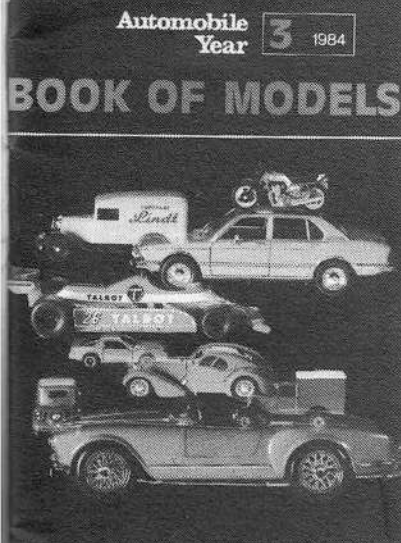
The Stockton Modeller have recently begun to produce a range of accessory and tune-up parts for the Tamiya range of electric buggies. Their first item to go into production is this moulded polycarbonate undertray to fit onto the 'Subaru Brat' and 'Lancia

Rally' chassis underside. This will help to prevent mud and water being thrown up and contacting the servos and receiver. The under-shield fits very snugly to the chassis and is secured by four self-tapping screws (not supplied). Also from the same stable will be a chassis cover, also produced from polycarbonate which will retail at £2.00.

Finally, The Stockton

Modeller will be producing light alloy machined top suspension blocks for the 'Brat' 'Lancia Rally' and 'Frog' buggies. These items will be far stronger than the kit items and will be in production soon. Price £2.50 a pair.

All the above are available from The Stockton Modeller, 17 High Street, Stockton, Cleveland TS18 1SP. Tel: (0642) 616680.



British Radio Car Association

The National organising body for R/C Racing
The British Radio Car Association (BRCA) is affiliated to European Federation Radio Autos (EFRA) and the International Federation Model Auto Racing (FMAR).

Family membership for 1984
Full members may now enrol any additional members of their immediate families for the attractive fee of £1 per head. Family membership benefits include insurance and the right to enter BRCA race meetings. Only one copy of the newsletter and handbook will be sent to each family. Family membership does not include voting rights.

How to join Contact the Membership Secretary, 6 Park Way, Queensbury, Bradford, W. Yorks. BD13 2HJ.

Fees — Full membership £7.00 per annum. Family membership £1.00 per head.

WHENEVER THE QUESTION of brakes arises I am always reminded of the apocryphal story attributed to Ettore Bugatti the world renowned classic car designer and builder who, when a customer complained about the poor braking on one of his cars, is reputed to have said: "I make my cars to go, not stop!"

Fine, as far as it goes, but the ability to slow down to take avoiding action or adjust speed for a corner is to my mind vital for both electric and I.C. powered Off-Road cars. Brakes on electric power vehicles are rarely mechanical, although there is no reason at all why a micro servo could not be used, coupled into the speed control output of the receiver using a 'Y' lead to operate a disc or drum brake. The usual means of braking an electric power vehicle is to brake the motor with a dynamic braking system. This takes advantage of the fact that the Direct Current (D.C.) motors used are able to act as generators or dynamos as well as motors. If you have a voltmeter, try connecting it across the poles of the motor then spin the back wheels of the car and you will see the needle on the meter kick, indicating that a voltage has been developed. If the car is free-wheeling and an electrical 'load' in a resistor is put across the motor poles the motor will slow down very rapidly. This is because the motor has been required to do some work, in this instance the rotating motor has been forced to feed its output to a resistor which it heats up. The energy contained in the rotating motor has finally been converted into heat, the resistor gets warm.

By varying the load across the motor the braking effect can be varied. Simple fixed resistor controllers either switch one of the resistors across the motor or directly short out the motor **Fig. 1**. A short circuit, or direct connection

Associated RC10



Below: the Associated prototype 1/10th scale buggy is set for full production from July onwards. The main chassis is a stamped alloy channel, spacious enough for most guidance/speed control systems. The wheel base can be lengthened or shortened as desired by moving the front-end.

across the motor is an extremely low resistance load and the maximum possible current flows, thus loading the motor highly and producing maximum braking effect. Electronic controllers use a transistor in the braking circuit to vary the resistance, and thus the braking effect electronically and often proportionally. The more you pull back the stick, the more braking achieved. As quite high currents can be involved in braking, large (expensive) power

transistors have to be used for maximum braking power and sometimes the cost/effectiveness compromise works in favour of cost, resulting in the actual braking power of electronic systems being lower than that found in resistor systems.

Turning to the I.C. world, brakes on 1/8th I.C. Off-Road cars are invariably mechanical, servo-operated devices and can be either drum or disc types. Electrical brakes have been seen on circuit racing cars, but have never really caught on, the extra complexity outweighing the advantages. Disc brakes are generally smoother operating and maintain their adjustment better than drum brakes. Most drum

Below: close up of the 'RC-10' front end which displays similar steering and suspension set-up to the Kyosho 'Scorpion'. Constant volume shocks provide extremely smooth symmetrical damping and can be adjusted to alter ride-height and springing.



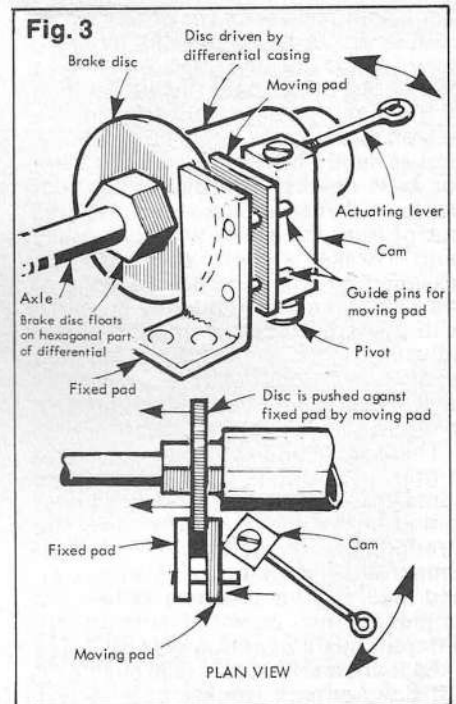
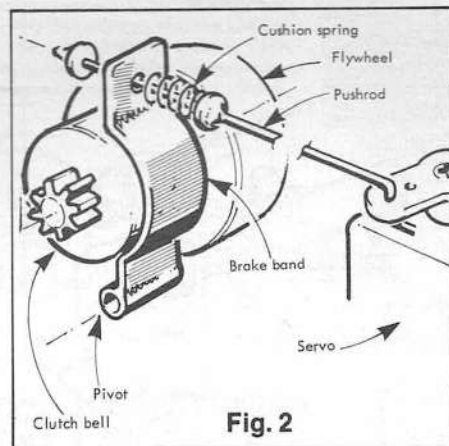
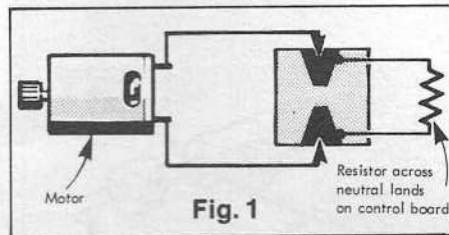
Braking Point!

Try out-braking the opposition into the corners with the Rough Riders guide

brake systems seen, operate by using the clutch bell as the drum with a simple servo-operated band rubbing against it **Fig. 2**. This type of brake tends to snatch a little as the clutch bell is rotating at high speed compared with the rear axle where disc brakes are usually mounted. On some 4 wheel-drive cars, the disc brake is fitted onto the shaft which carries the power to the front wheels, it does of course brake all 4 wheels, and as rotation speed is moderate, smooth braking action results. The classic R/C car disc brake is



Shock absorbers are, at present, Kyosho on the rear and Associated constant volume units on the front. Polycarbonate covers for the drive gear and R/C space will be included.



usually a very simple device with a 'floating' disc of either a 'Ferodo' material or steel disc (G.R.P. can be used) running between two pads — a variety of materials can once again be used, operated by a very simple cam. **Fig. 3.** Snatch is eliminated by using a cushion spring in the linkage. The brake is usually activated by the throttle servo which is used in conjunction with a self-centring stick on the transmitter so that with the stick in the neutral (central) position the throttle is closed and the brake disengaged. As the stick is pushed forwards the throttle opens and a spring override system leaves the brake off. When the stick is pulled back, the throttle stays closed, and override is once again fitted, and the brake is progressively applied. Some drivers adjust the linkages to provide a slight drag braking effect with the transmitter control stick in the

neutral position.

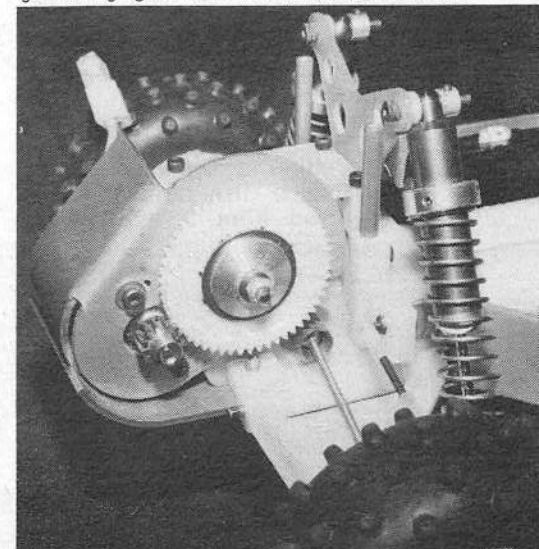
For both electric and I.C. powered vehicles the level of braking can make the car either a nightmare or a delight to drive, few Off-Road racers that I have seen take any real trouble over this vital area of car handling.

If the braking effect is too vicious when the brakes are applied (usually as the car is entering a corner), the back wheels lock up and the car starts to spin. With braking set at the correct level, the car can be set up in a controllable drift or slide by combined use of brakes and steering and when balanced in the drift, powered round the corner using throttle control to either tighten up the turn (by opening the throttle) or widen the turn by closing the throttle. Even on the straight, too much braking will cause the car to break away from a straight course if brakes are applied with the car travelling in anything other than a dead straight line. Fast cornering is a matter of balance for even when the correct line is chosen, the braking and power must be finely judged so that the car remains on the fine edge between grip and skid. This balance is something which one can feel almost if one were in the car after some experience. The secret is first to stay on the track when you are learning cornering at modest speed using well set up brakes to adjust the cars speed before taking the corner. Four-wheel drifts come later!

Electronic speed controllers sometimes have facilities for adjusting the level of braking, don't just accept the setting as it comes, try out the effect of varying the setting. Fixed resistor controllers are often more of a problem as many simply short out the motor. Try tracing the circuit with the con-

troller set at neutral and you may well find that on your type the braking is a dead short. You could cut the land on the control board and fit a wire wound potentiometer across to vary the braking effect, or just a fixed resistor. This will need to be a large wattage type of at least 10 watts rating.

Diameter of 1/8th scale disc brakes is not important as far as braking effect is concerned, the side used does effect heat dissipation and wear. In both electric and I.C. braking systems, the energy contained in the moving car is dissipated in the form of heat — from the resistor in electric cars, from the disc or drum in mechanical systems. A large disc radiates heat more effectively and doesn't suffer from 'fade' or *Below: the RC-10 features a ball type differential inside the main drive gear, the diff can be adjusted by tightening the outer locknut, easy access for gear changing and maintenance is a major feature.*



Rough Riders

diminishing power and as it has a larger area, there is more of it to be worn down. Pads for the disc brake also contribute to the best radiation effect of the braking system and need to be a reasonable size. As supplied most disc brakes need a little work doing on them for best results. The disc must float freely on its carrier, if it sticks and runs out of true, the brake will continually bind. Brake snatch can also be lessened by rounding off the edge of the cam which is frequently supplied with a sharp corner or edge. A screw adjuster is really useful so that the whole set-up does not have to be totally re-set every time an adjustment is made to compensate for wear.

There is almost certainly a cushion spring incorporated in the linkage somewhere and the actual force transmitted to the cam is regulated by the strength of this spring. The adjuster simply sets the clearance between cam and pad. If the brake is either too vicious or not powerful enough, try different cushion springs **Fig. 4**.

As there is so much grip available on Off-Road circuits, brakes can be very powerful and wear rates can be surprisingly high. Steel discs are usually preferable with easily and cheaply changed pads. Epoxy glass material makes good cheap pads and a number of these can be made at a time. Do make sure the pads are a loose fit on their guide pins.

Readers' Hints & Tips

Readers Adrian Hersh and M. J. Gaunt have both provided us with *Tamiya* Tips for this month's issue. Adrian suggests replacing the torsion bar and hairpin style springing on the *Tamiya* racing buggies with coil springs inside the dampers. This idea has some merit, as fitting the standard 'Biro' springs over the damper spindle is likely to speed up the scoring and scratching of these items and cause a greater rate of oil loss from the dampers. **See Fig. 5**. Adrian recommends brake hydraulic fluid for the dampers, interesting, I noted that the *Garbo 'Presto'* 1/8th Off-Road kit included damper oil which seems similar to hydraulic fluid.

Bending plastic sheet for bumpers can be difficult, so M. J. Gaunt suggests cutting a section from a plastic drainpipe thus producing an already curved front bumper. This

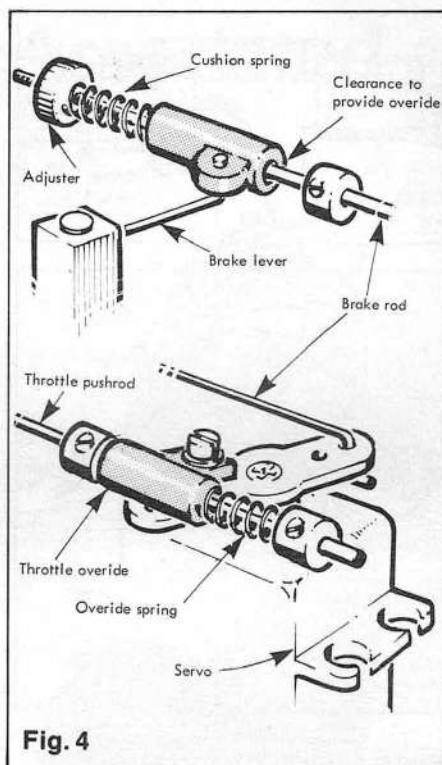


Fig. 4

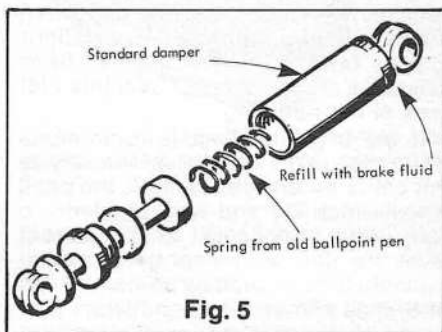


Fig. 5

plastic might be a little brittle, so choose your drainpipe carefully. **See Fig. 6**.

Duration and Speed again!

One of our readers took me to task over recent 'Rough Riders' tips on varying the gear ratios on the 'Scorpion.' He claimed that his car ran for far longer than 5 minutes at high speed and couldn't see what was wrong with my car if I had trouble in obtaining 5 minutes duration. Well I stand by what I say and am supported

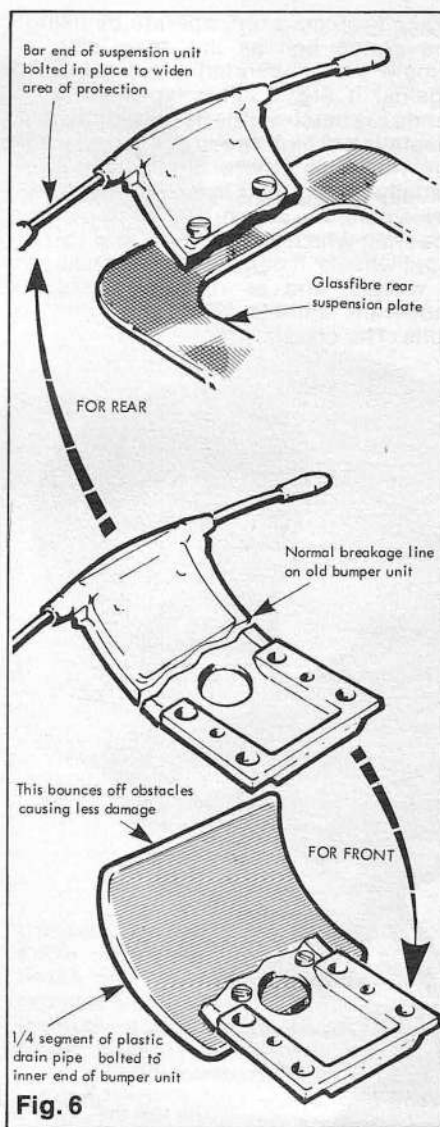
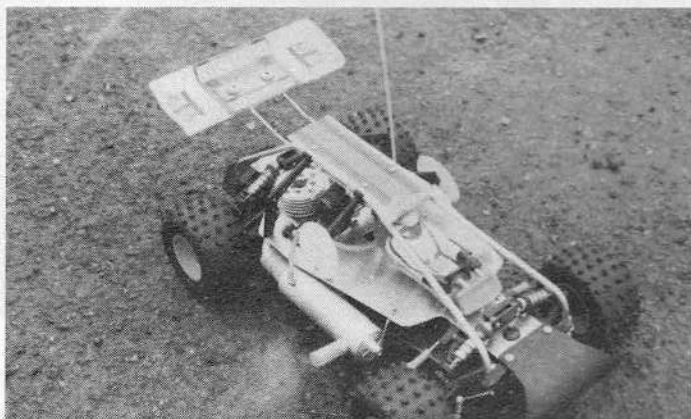


Fig. 6

in my view by the large number of people who race the car competitively.

Yes, I will agree that if I run my car round on the grass and tarmac outside my house it will easily run for 5 or even 6 minutes on the 'high' gear ratio supplied, but, put it in a race and the situation changes. Quite simply it is unlikely that in fun driving that the car will be driven flat out for five minutes, ever. Racing is a special situation and when the car is confined to the typical Off-Road racing circuit, then the constant demands of acceleration and braking round tight corners, batteries are flattened at a high rate. The aim is to last 5 minutes, not 4 minutes 59 secs. or 5 mins. 01 secs. and if the batteries are still partially charged at the end of the race, a higher gear ratio could have been used and the car could have gone faster. If the batteries don't last, the gear ratio is too high. The option of an intermediate ratio allows this balance of time versus performance to be adjusted that little bit better. If your car lasts 7 minutes, but comes in last you still need to look at your gear ratio.

MODEL CARS



Left: Derek Brader's 4WD Serpent 'Cobra' which he drove to a conclusive victory at the Wombwell BRCA 1/8th Off Road National Meeting.

EMCO

UNIMAT 1

THE NEW MINIATURE MACHINE TOOL

Mill Capacities
Travel of Slides
Longitudinal 50mm
Cross 30mm

Machine Vice
Capacities
35 x 25mm

The basic machine comes complete as illustrated for operation as a lathe, milling and drilling machine, and includes:
3 Jaw Lathe Chuck; Turning Tool; Lathe Centres; Collet Holder and Collets; Machine Vice; Milling Cutter; Fine Feed; Drilling Arm; Fully Motorised; Safe 6v Motor; Raw Materials and Instruction Book.

Lathe Capacities:
Distance Between Centres
Max Swing Over Bed
Hole Through Spindle

135mm
50mm
8mm

ALL FOR ONLY

£69

Inc
V.A.T.

SUITABLE FOR NON FERROUS METALS, PLASTICS & WOOD

POWERFUL EMCO 15 WATT TRANSFORMER £18.40 Inc. V.A.T.

Available from leading model shops
Sole U.K. Distributors Trade Enquiries Welcome

SOLENT TOOLS LTD 267 London Road,
Portsmouth, Hants. Tel: 0705-667652/3

MAIL ORDER SPECIALISTS

Windsor Model Shop

WINDSOR
56321

45 Albany Road, Windsor (off St. Leonard's Road)

CARS — 1/10th (Elec.)

TAMIYA	
Sand Scorchers	£79.95
Rough Rider	£79.95
Ford Ranger	£79.95
Wild Willey	£75.00
Subaru Brat	£54.00
Audi Quattro	£72.00
Willy's Wheeler	£75.00
New! Frog	£72.00
Lancia Rally	£54.00
Holiday Buggy	£42.95
Sand Rover	£42.95
KYOSHO	
Scorpion	£71.95
Beetle	£71.95
Mardave Apache	£45.00
Hirobo Rockin' City	£98.00

CARS 1/8th

S. G. Leopard 2WD	£149.95
S. G. Leopard 4WD	£225.00
Garbo Ghepard 4 x 4	T.B.A.
Sigma Panther	139.99
Sigma BMW	£139.99
PB Mustang	£92.00
Jumbo + shocker diff.	£92.00
Mardave Marauder	£46.00
Mardave Stock Car	£33.00

ENGINES

Super Tigre X21SE	£38.00
Irvine 20 ABC	£38.00
Picco 21RE II	£58.50
Picco 21SE Mk II	£56.50
Picco 21SE Buggy	£55.00
OPS 21RE with Carb.	£73.00
OS21 FSR	£52.00
OS21 VF RE	£58.75
Picco 9mm Carb.	£15.79
PB Side Carb.	£15.84
OPS Plugs Cd (10)	£15.75

ELECTRIC MOTORS

MG Buggy Special	£10.00
MG Yokomo Turbo Power	£8.95
MG Clubman	£10.00
Kyosho Le-Mans 480S	£17.95
Kyosho Le-Mans 480T	£17.95
Mabuchi Black	£14.95
Parma Porsche Buggy	£9.95
Mabuchi 540S	£3.42

TYRES

MRC Front Ribbed	£7.41 pair
MRC Slimline C/Lug	£7.94 pair
MRC Slim Studded	£7.94 pair
MRC Super Singer Studded	£8.45 pair
Bajoma Moulded Front	£7.95 pair
Bajoma Moulded Rear	£7.95 pair
UFRA Front Tyre Ribbed	£5.95
UFRA Rear Nobble	£6.95

UFRA 4WD Nobble	£6.95
S. G. Leopard Tyres	£7.95 pair
Mardave Marauder	£6.00 pair

1/8th CIRCUIT TYRES

Bajoma/UFRA/P.G./S.G. in stock.	
Mardave Apache	£1.40 each
Rough Rider Tyres	£3.50 pair

1/10th OFF-ROAD TYRES

Tamiya Spiked Tyres	£6.75
Tamiya R/Rider Tyres	£3.99 pair
Mardave Wide Spiked	£3.00 pair
Mardave Normal Spiked	£3.00 pair
Mardave Square Pattern	£3.00 pair

NICADS

Pencells	99p
Sub C Saft	£1.65
Sub C Sanyo	£1.95
Saft 7.2v Tamiya	£13.95
Saft 7.2v Scorpion	£13.95
Saft BVY Tamiya or Scorpion	£16.50
Receiver packs square or flat	£4.40

RADIO

Futaba FP2 MR S/Rev.	£44.95
Futaba FP2 GLX/Rev. + Rates	£79.95
Futaba FP2 GLX Combo	£57.00
JR Lazer 2-ch. S/Rev. + Rates	£56.95

SPECIALS

S. G. Leopard Starter box	£34.95
S. G. Glow/Starter	£19.95
S. G. Starter Wheel	£3.60
S. G. Quick Fills	£2.50
S. G. Wet Weather Airfilters	£3.50
OPS Airfilters	£1.70
Picco Airfilters	£1.70
MFA Fast Charger	£15.25
Goliath Fast Charger	£14.25
Battery Eliminator	£2.85
Steel UJ Tamiya	£8.50
3 Speed Board fit Tamiya	£3.30
Steel Rear Cage	£6.99
Thorpe King Pin Sockets	£3.25
7.2v Connectors — Male	57p pair
7.2v Connectors — Female	57p pair
Flexan Spray	£2.25
Lexan Radio Boxes	£7.50
Scorpion diff.	£7.95
Frog Diff.	T.B.A.
Heavy Duty Bumper Brat	£2.95
H/Duty Bumper Kydek Tamiya	£2.99
H/Duty Bumper Kydek Tamiya	£2.99
Scorpion	£3.99
Ball Races Tamiya	£1.50
Ball Races Scorpion	£1.95
Mardave Shocks	£5.75 pair
Kyosho Scorpion Shocks	£7.50 pair
Jumbo 1/8th Shocks	£8.00 pair
SG Leopard Shocks	£10.65 pair



OPENING HOURS: MON.-SAT. 9.00 a.m. — 6.00 p.m.
HALF DAY WEDNESDAY 1.00 p.m. LATE NIGHT FRIDAY 6.30 p.m.



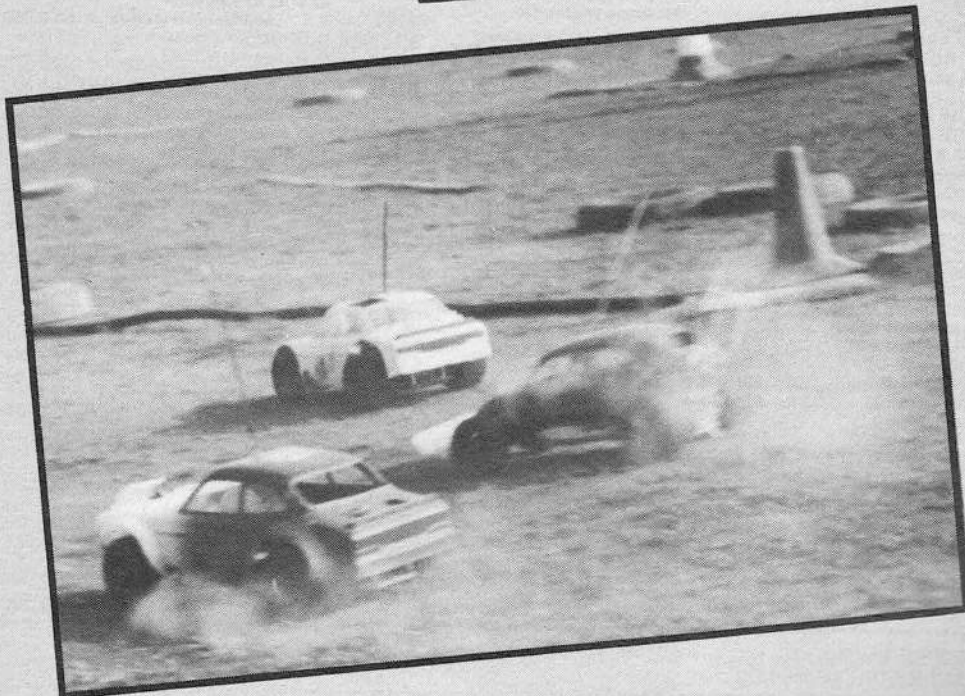
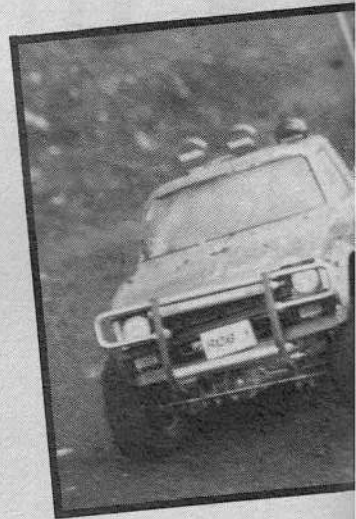
Photo-Action Competition

Photo 1. Ian Bishop of Skegness, Lincolnshire took this shot of a Tamiya 'Wild Willey' whilst racing against a friend in his back garden. Ian used an Olympus Camera to show the 'Wild Willey' doing its stuff.

Photo 2. Tamiya Toyota 4 x 4 is pictured here in very scalelike pose, the photo was taken by Julian Carter of Banstead, Surrey using a Minolta XGM camera.

Photo 3. Spectacular 1/8th scale IC Off Road action shot at the Southampton Off Road club track. Chris Clark's photo shows three 'Alpha's' making a bid for the first corner. Camera used was a Canon AE1 with 50mm lens.

Photo 4. Another tussle for the lead is captured here, this time by Mark Scholey at the Chesterfield Off Road club venue. Mark comes from Doncaster, S. Yorks and used an Olympus OM10 camera with standard lens.



How to win a set of radio control equipment

How to win a set of Radio Control Equipment

- (1) Send *Model Cars* an action photo that you have taken.
 - (2) The photo may be of any type of R/C Model Car, the theme is ACTION.
 - (3) You may send black and white or colour prints (not negatives) or colour transparencies. Maximum size of 'Half Plate' please. Colour transparencies may be either 35mm or 120 size.
 - (4) Any number of photos may be submitted but please mark the back of the photos clearly with your name and address plus details of the models, the site and the camera used.
 - (5) If you wish us to return the photographs please include a stamped addressed envelope.
 - (6) The photographs must be your own work — commercial processing is allowed.
 - (7) Entries will be judged by staff of MAP. No correspondence or telephone conversation can be entered into about entries.
 - (8) The judges' decision is final.
 - (9) *Model Cars* retains the right to publish winning entries plus selected runners-up in any form it sees fit. All photographs will be paid for at our usual rates.
 - (10) The publishers, MAP Ltd., can accept no responsibility for photographic material submitted but every care will be taken to ensure its safe return when requested.
- SEND YOUR ALL-ACTION PHOTOS TO: MODEL CARS PHOTO PRIZE, PO BOX 35, WOLSEY HOUSE, WOLSEY ROAD, HEMEL HEMPSTEAD HP2 4SS.

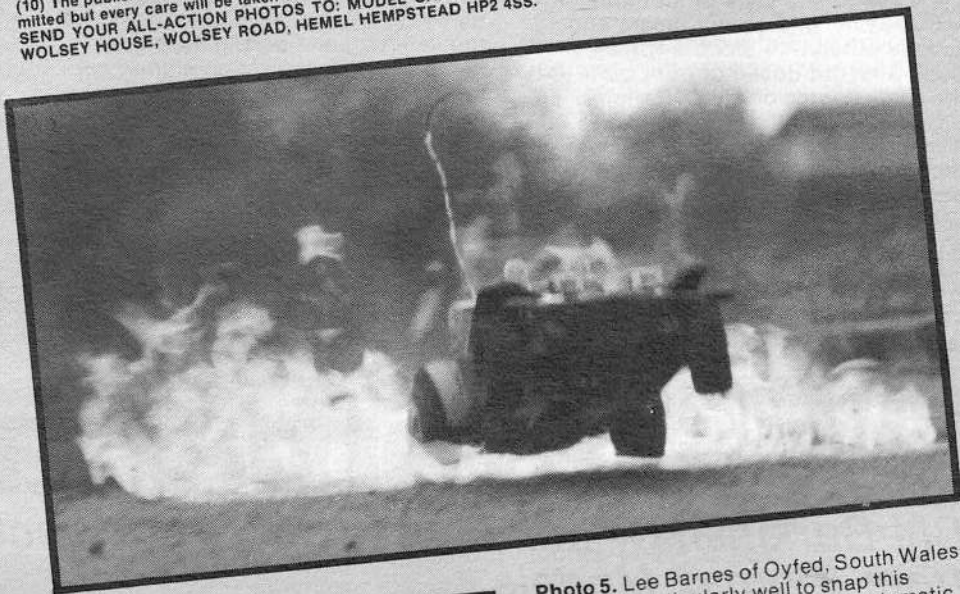
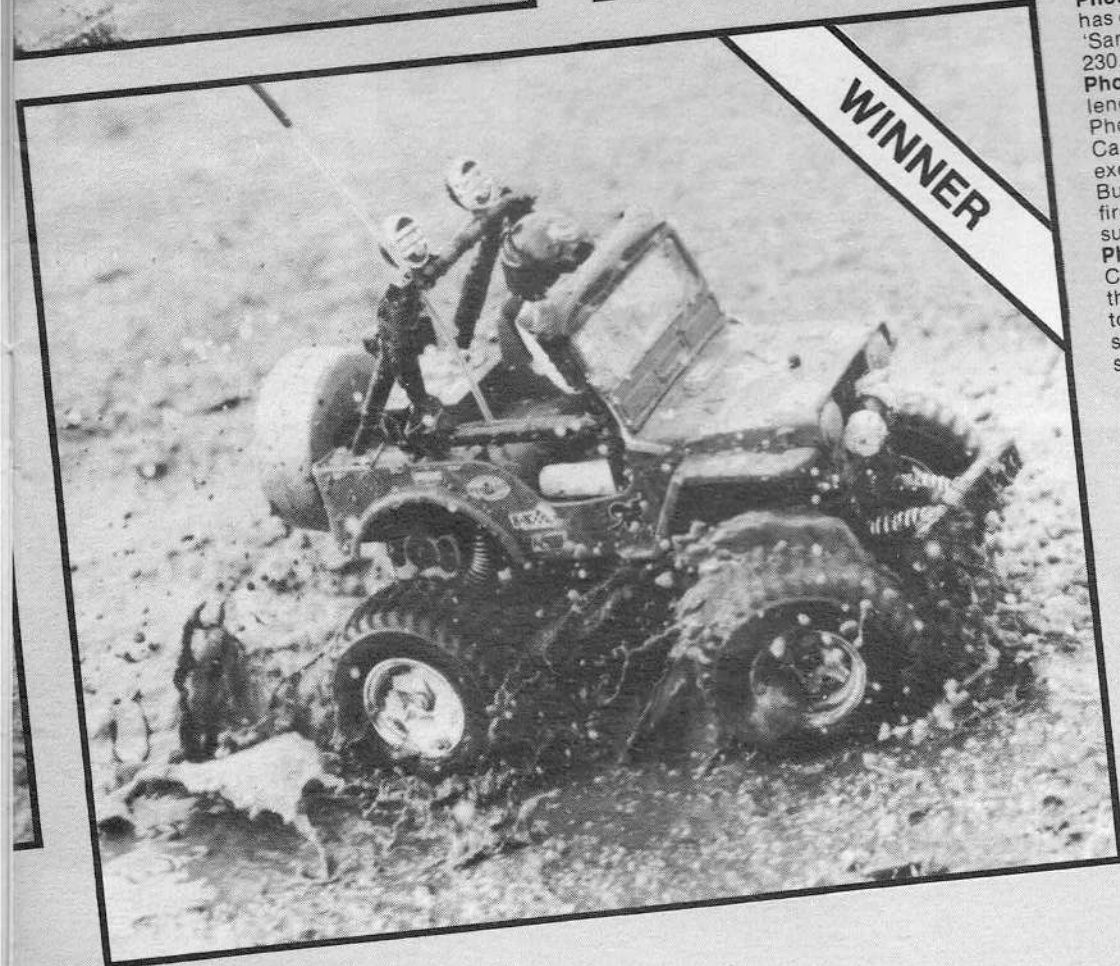


Photo 5. Lee Barnes of Oyfed, South Wales has done particularly well to snap this 'Sandscorcher' using a Kodak instamatic 230.

Photo 6. Some readers go to extraordinary lengths to achieve exciting and unusual Photo Action shots. David Elves of Cardington, Northumberland, is no exception and has pictured his Holiday Buggy pulling a wheelie through a petrol fire. David assures us that only the road suffered.

Photo 7. This month's winner by P. Czerwinka of Eccles, Manchester is surely the best 'wild willy' shot that we can expect to see. Some clever photography has really stopped the action to give the mud-splattered effect.

WINNER



Track Test

JAPANESE MANUFACTURERS have a knack of producing top-notch Off-Road racing cars in 1/10th scale, *Kyosho* are no exception, their 'Scorpion' and 'Beetle' electric buggies soon established themselves as the cars to beat in 1983. Now the 'Tomahawk' has arrived boasting a host of minor improvements and a major revision in the method adopted for R/C equipment and speed control mounting. In place of the injection-moulded plastic crate, fitted to its predecessors, the 'Tomahawk' uses the shaker plate style of mounting favoured by 1/12 circuit racers and several other 1/10 electric vehicles. Such a layout does not offer quite the same degree of waterproofing provided by the crate style, but *Kyosho* have expended quite some thought in protecting the vitals and ensured that the full equipment tray can be removed easily for cleaning and maintenance.

Excellent free-moving suspension with oil-filled dampers provides very compliant suspension, a differential is standard and a fair range of

suspension adjustments are provided to allow drivers to tinker away to match the cars handling to their driving styles.

Assembling the 'Tomahawk'

Presentation of the kit is faultless in best Japanese style, all parts are nicely displayed within the superbly colour printed box. Instructions are comprehensive and throughout the construction never give a moments doubt as to exactly what to do. Thread locking compound and shock-absorber oil are provided, the oil being also suitable to lubricate all the various parts during assembly.

A basic square section aluminium rod chassis is spaced apart in ladder form by aluminium alloy cross rails — or rungs. I checked the bends at the chassis front end and also tweaked the chassis true on assembly. The aluminium alloy gearbox is ready assembled, there are no ballraces supplied, but these are available as accessories. I took the trouble to modify the motor mounting plate at this stage so that I

would be able to 'Mix-n-Match' the gears supplied to produce an intermediate gear ratio. A *Mabuchi* 540 motor is included.

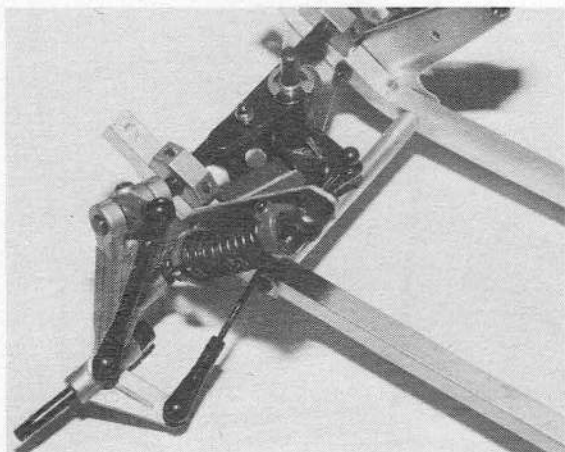
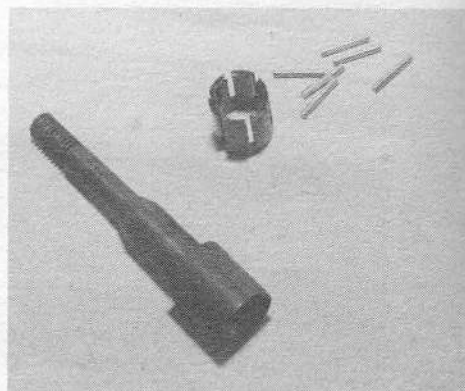
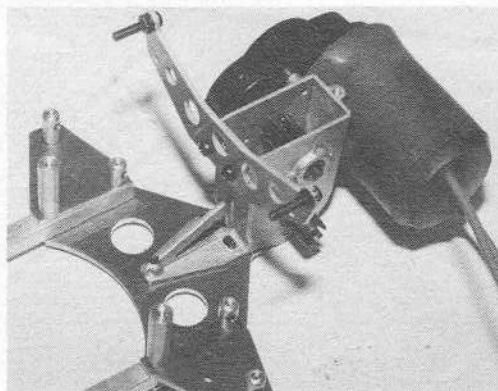
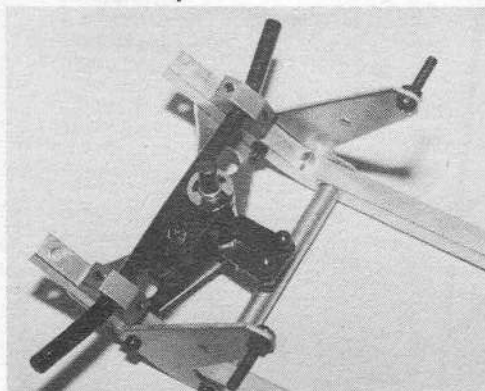
Building the suspension does demand care, it is important that the wishbones move absolutely freely and a little fiddling is needed on the front end to set the pivot rods properly and lock the upper radius rod ball-joint into the correct place as this sets the downward suspension movement limit on the front trailing arms. If the suspension travel is set too long, the steering track-rods will foul the chassis rails.

The alloy-plates that hold the rear wishbone pivots are slotted allowing for drive-shaft end float adjustment and should not therefore be locked up fully until the rear wishbones and spindles are fitted. Ingenious roller bearings are provided for the new wheel spindles, small moulded plastic cages space out six hardened steel rollers. A little grease is helpful in keeping the rollers and cage in place whilst the unit is assembled onto the wheel spindles. Small moulded plastic

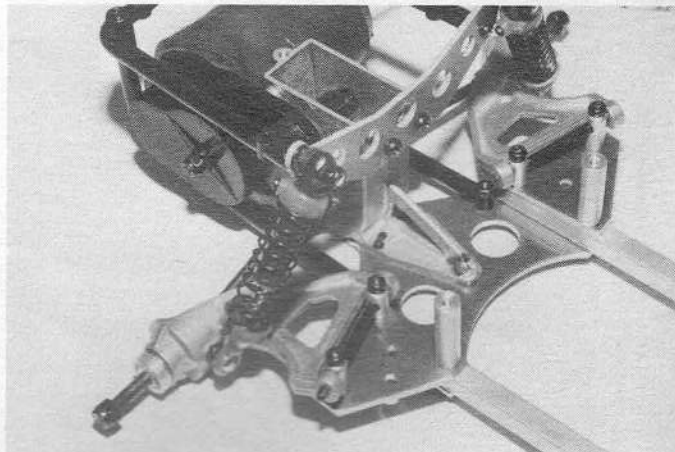
KYOSHO
THE FINEST RADIO CONTROL MODELS

Tomahawk

Bill Burkinshaw builds the latest 1/10 electric off-road racer from Ripmax Models



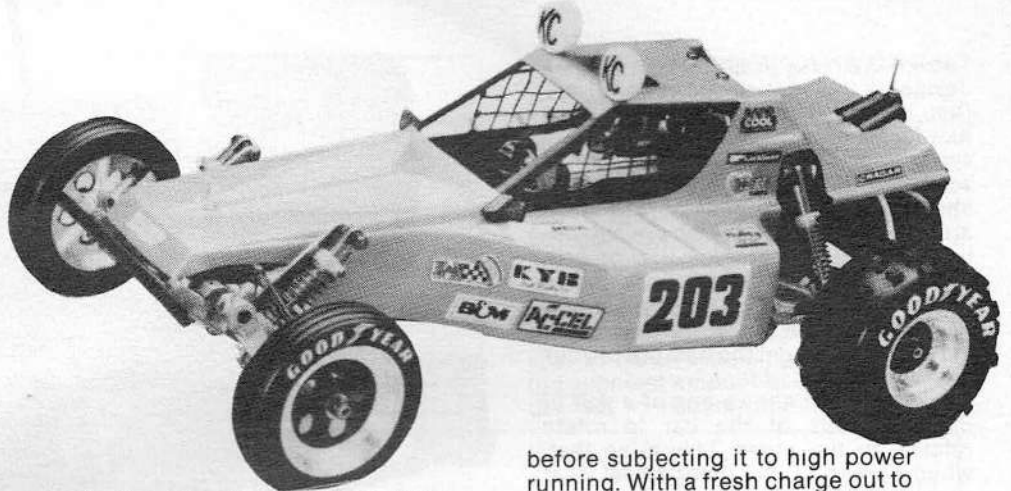
Above left: stage 1 of front suspension assembly. Left: front suspension fully assembled. Above centre: motor and gearbox bolted to chassis. Above right: rear spindle run in plastic caged roller bearings. Right: rear end ready to roll.



the rear wheels and tyres together at this stage even though the instructions save this for later. Without the wheels in place the spindles slip out of the wishbones and can allow the roller bearings to fall apart. Rear wheels are assembled without any adhesive, a plastic ring fits inside the tyre and when the wheels are screwed together over the tyre, the tyre is squeezed between wheel rim and ring and held solidly in place.

Suspension mounting plates are slid around until the drive shafts have the stated end float and then locked up tight. Front wheel bearings are bronze bushes and the tyres in this case are glued to the rims. A good roughening up of the plastic wheels is recommended before super-gluing the tyres in place.

R/C equipment fixing uses a combination of double-sided foam servos tape and tie wraps. Servos are soon fitted into place followed by the receiver battery pack and switch for which a splash-proof cover is provided. Speed control is a three-speed and reverse servo-operated unit with resistors, clamped underneath a heatsink on top of the gearbox. A vacuum-formed Lexan cover which incorporates a painted driver figure covers over the speed controller, servos and receiver, this is held in place with two quickly detachable



body pins. The six-cell Ni-Cad drive batteries are held underneath the shaker plate with re-useable tie wraps. Last task was to wind up the spare receiver aerial onto the neat card supplied and route the requisite amount out to the rear-mounted whip aerial.

Several little ancillary parts such as lights, mirror, dummy exhausts are supplied for fitting to the Lexan body once this is trimmed and sprayed and this does add a nice touch to the otherwise rather bare appearance of a Lexan body.

Racing the Tomahawk

In my usual fashion I ran in the motor and gearbox running light

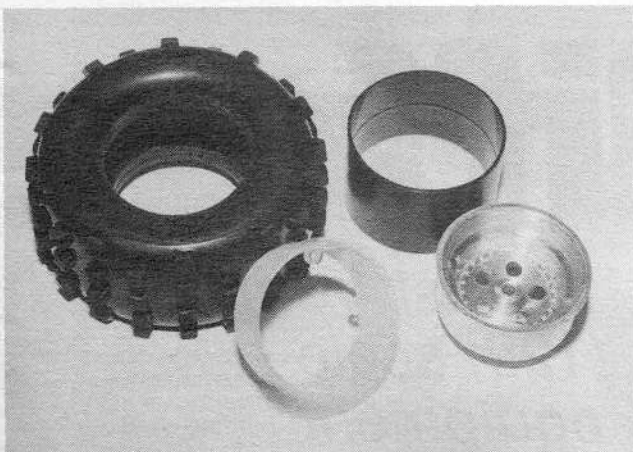
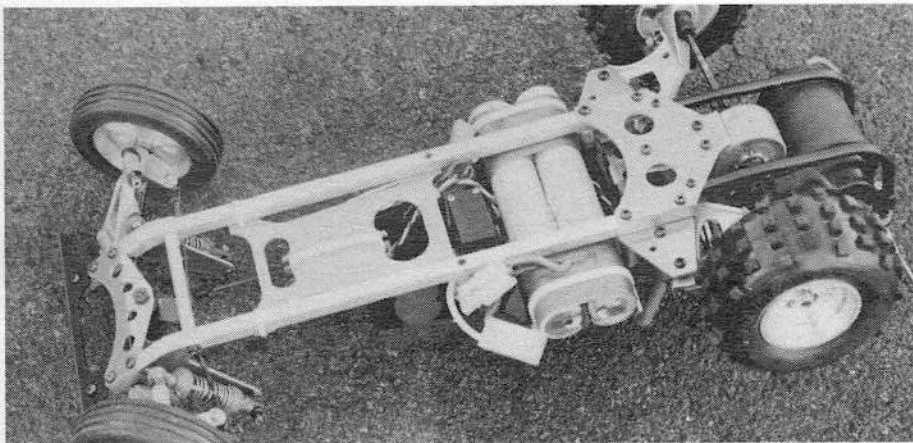
before subjecting it to high power running. With a fresh charge out to my standard test track — the road and garden outside my house and away she goes.

Speed is excellent, full power on tarmac or grass is fully controllable with progressive power-on understeer. Taking the power off in turns provides over-steer but only at high speed and on tarmac this does cause a spin. There is a noticeable tendency for the front wheel on the inside of a turn to lift completely clear of the ground, jacking up the springs on the rear cures this, but as it does not seem to affect the handling, three-wheel cornering does seem to be preferable to jacking up the rear springs. Slow down and the steering really does bite, plenty of turning power aided by the differential. The three steps of the speed controller are well spaced, but the braking resistor is a little fierce, I would imagine it to be quite capable of locking up the back end on low traction surfaces.

Overall a well balanced car, easy to drive which must be good for competitive owners with an excellent suspension system and well proven drive train incorporating a number of worthwhile improvements. A car to be reckoned with this season.

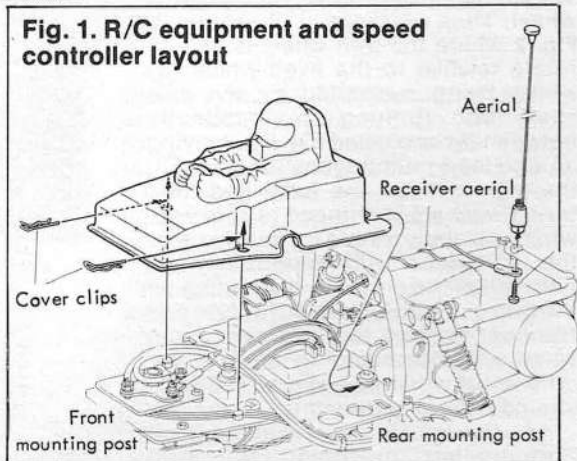
U.K. Importer/Distributor: Ripmax Ltd., Ripmax Corner, Green Street, Enfield, Essex.

Price: £99.50.



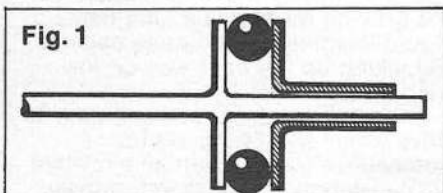
Above: underside view of 'Tomahawk' showing battery location and power connection to speed controller. Left: wheel and tyre assembly is clever and very positive.

Fig. 1. R/C equipment and speed controller layout



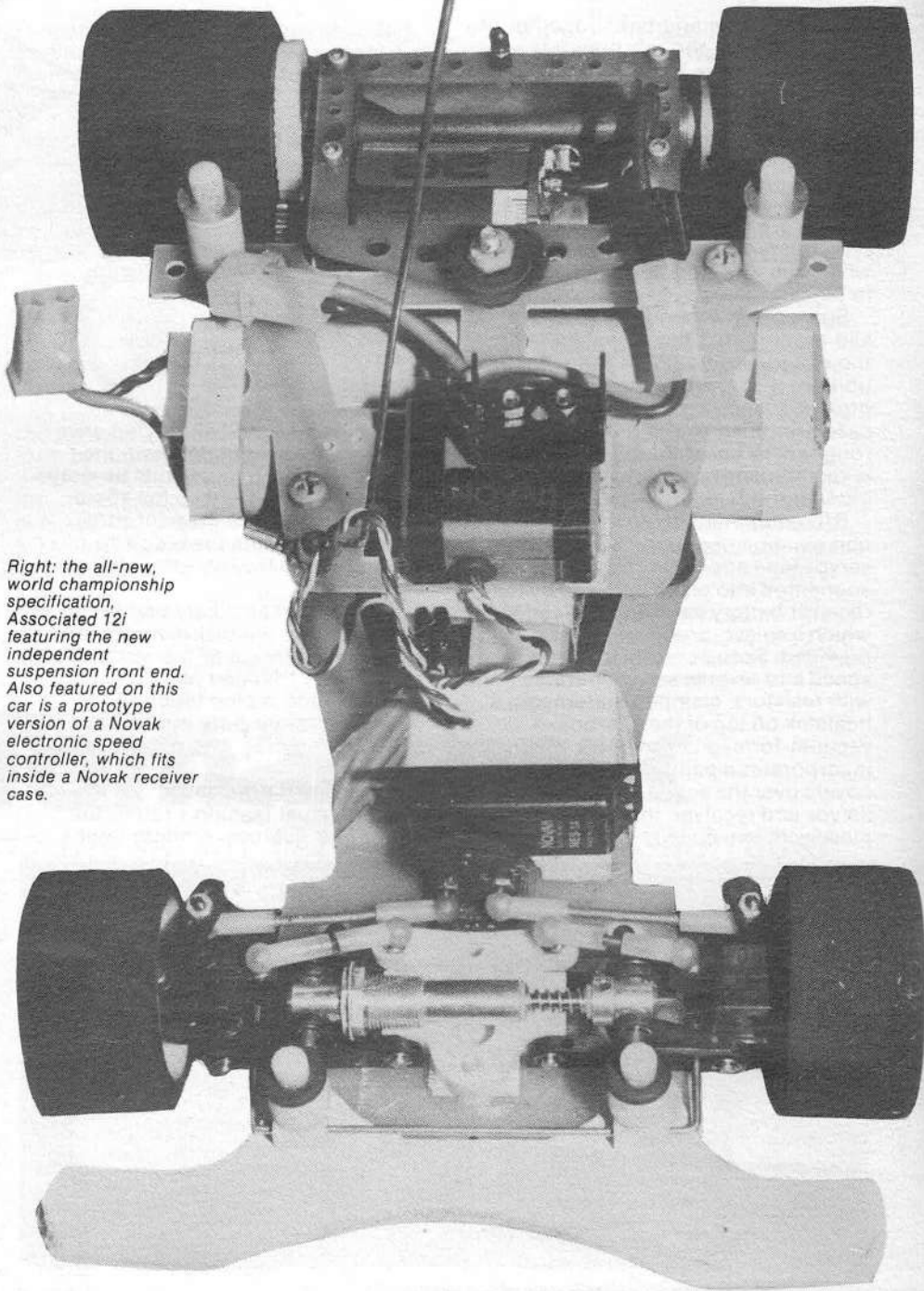
TALK TO ANYONE about that strange device at the rear of your 1/12th car (no, not the start line marshal) and there is, as the title suggests a vague shrugging of the shoulders and "well it works OK" kind of attitude. There is a shortage of technical information around and most opinions are subjective relating to personal use or preference. I don't trust my theory to give you a 'best technical diff' recommendation, but some of the words that follow may help you to get the best out of your choice.

A differential allows one of a pair of driven wheels of the car to rotate relative to the other. This is so that, when cornering, the inner wheel (that nearest the inside of the corner round which the car is travelling) may travel a shorter distance than the outer wheel in the same time period. Whilst still transmitting a proportion of the torque and power required to maintain forward motion. If we have no differential then the inner wheel will 'scrub' or slip across the racing surface thus wasting power. If this scrub or slip is low enough then the car will tend to understeer. For these reasons the power should not be passed straight to two wheels mounted on one continuous axle, but instead act through a device called a differential, which drives two separate half shafts, one to each wheel. Now before you all say you only have one shaft in your diff., please look at Fig. 1. As you can see, there are two axles involved it's just that one of them doubles as the wheel.



The answer is to use small ball bearings and thrust washers in the main drive gear to act in place of the bevel pinions found in a conventional 'automotive' type differential. In order to locate and at the same time keep one wheel free from the main axle, a similar system is employed inside the free wheel. Thus we arrive at the set-up in Fig. 2 where the free wheel is able to rotate relative to the fixed wheel (B) whilst being supported by the axle shaft but running independently between races (C) and (D). By applying an end load on the races (C) and (D), the slip between the balls and their thrust washers is reduced to zero and, when you apply torque to the drive gear the differential will apportion drive between the two wheels depending on the grip or friction between the tyre and the floor. I hope this is clear to you since an understanding of how the differential works and why we need one should help in setting it up.

As far as I am aware, Cecil Schumacher produced the first

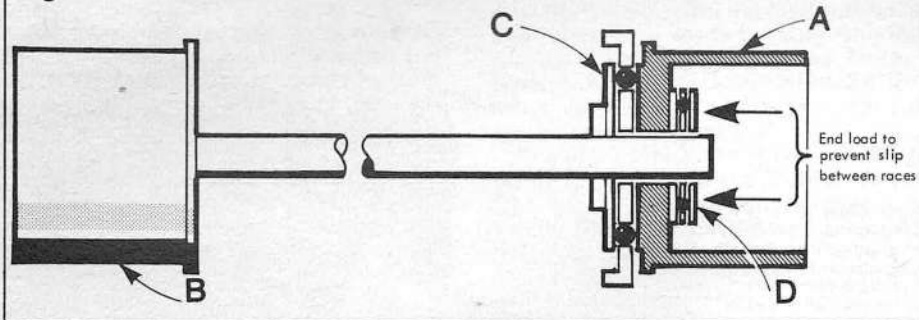


Right: the all-new, world championship specification, Associated 12i featuring the new independent suspension front end. Also featured on this car is a prototype version of a Novak electronic speed controller, which fits inside a Novak receiver case.

Indiffere

Getting the best from
your 1/12th scale
racing equipment

Fig. 2



differential for practical application into 1/12th scale cars and I have always assumed some inventiveness on Cec's part since even today the words *Pat. App.* still appear on the drive gear. Either the patent was refused or *Associated* have driven a coach and horses through it since their diff follows the same principle. Other manufacturers types abound and include the *Parma* (an *Associated* look alike). The *AYK* which uses a centre diff of the spur gear variety and the *Tamiya*, using conventional star bevel gears. Of all these only the *Schumacher MkIII (S3) Associated (ASS)* and *Parma* survive in general use.

I will assume you know how to take your diff apart and re-assemble it, if your not sure then please refer to the maker's instructions. Generally, all diffs have many of the components shown in the diagram in common with each other, some use more spacers or washers. In order to produce a diff that works best, we need minimum slip on the drive gear and maximum free rotation of one wheel relative to the other (Fig. 3).

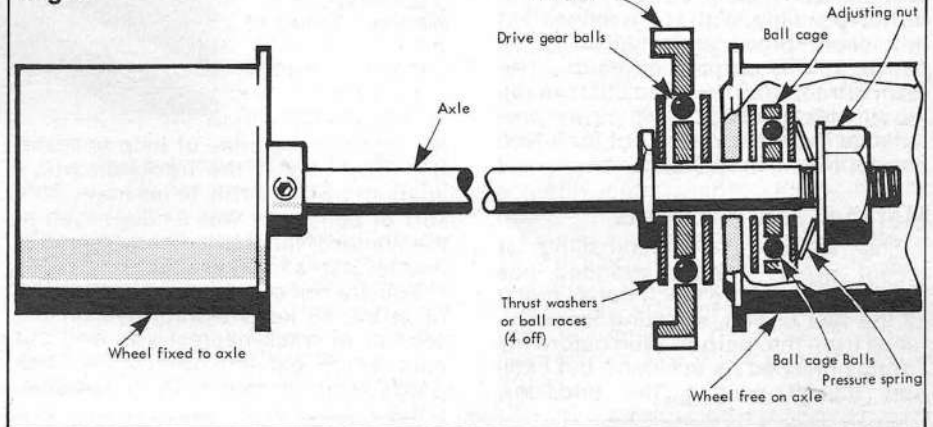
In order to achieve this goal it is necessary to clean all the components between each race meeting. Use a small tin (the cap of a paint spray can is ideal) and pour in some degreaser. You can use lighter fuel or a more powerful solvent such as Carbon Tetrachloride (CTC) or Trichlorethylene. Don't get them anywhere near Lexan! Turps and meths are not very good for what we are trying to achieve. Wash all the thrust washers, ball cages, balls (removed from drive gear) and ball

racers thoroughly. Clean the holes in the drive gear where the balls are located with a pipe cleaner. I cannot overemphasise the need to ensure all these parts are clean and grease free.

On the S3 diff it is recommended that the drive gear thrust washer should be *Loctited* to the axle nut and wheel

together but the drive gear will rotate on the axle. Spin the diff a few times by holding one wheel and turning the other to get the grease around. Don't be tempted to run a diff without lubricant, it may feel fine at first, but two things tend to happen. One is that the diff may appear slip free on the bench but once out on the circuit it can suddenly break into slip and when this occurs, damage is done to the balls and thrust washers. Secondly, without a seal to catch incoming dust and grit, the slightest amount of dust can cause the diff to become notchy and work

Fig. 3

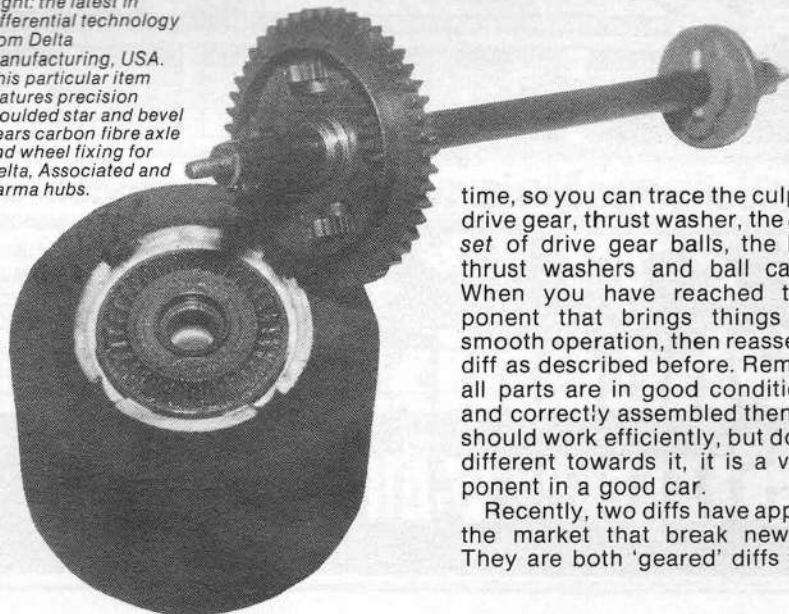


respectively. This appears to be unnecessary on the ASS type. If you *Loctite* the drive gear thrust washers make sure they are flat and square to the axle centre line, otherwise the diff will slip. Apply a small blob of silicone grease to each drive gear ball on assembly. *Schumacher* do a grease for the job which is very good, but any silicone based grease will be adequate. Automotive greases are best avoided. Continue assembly and apply a small blob of grease to each ball in the ball cage. Do up the adjusting nut tightly at first so that the components are held

badly. It is bad practice to run metal to metal contact without lubrication. Once the grease has worked around tighten the adjusting nut to achieve a slip free diff. Test this by holding one wheel in each hand and pushing the drive gear with your right thumb. The drive gear should not slip at all.

Remember to change drive gear thrust washers and balls as soon as there is any sign of wear. To check, assemble the diff dry and slowly turn one wheel relative to the other. It should feel quite smooth and if it doesn't you should replace (one at a

Right: the latest in differential technology from Delta Manufacturing, USA. This particular item features precision moulded star and bevel gears carbon fibre axle and wheel fixing for Delta, Associated and Parma hubs.



time, so you can trace the culprit) each drive gear, thrust washer, the complete set of drive gear balls, the ball cage thrust washers and ball cage balls. When you have reached the component that brings things back to smooth operation, then reassemble the diff as described before. Remember, if all parts are in good condition, clean and correctly assembled then your diff should work efficiently, but don't be indifferent towards it, it is a vital component in a good car.

Recently, two diffs have appeared on the market that break new ground. They are both 'geared' diffs which do

On The Carpet

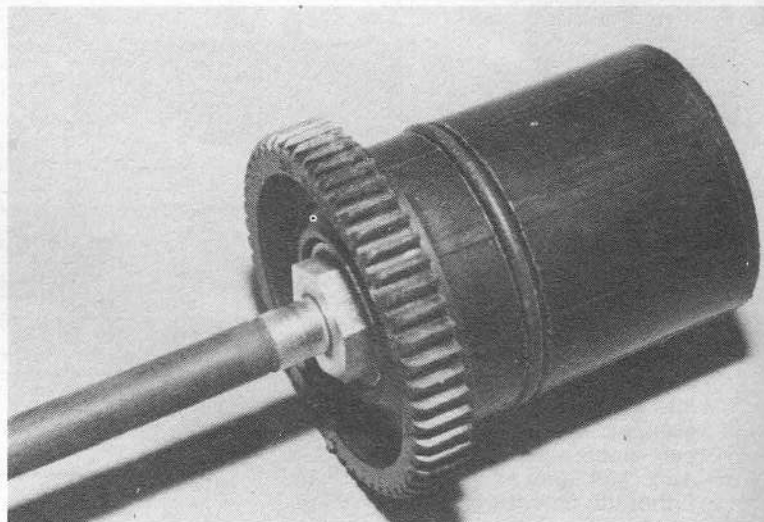
away with the balls and thrust washer principle and use gears to permit movement between the two wheels. The *Alpha Track Parts* diff is expensive but good. It uses brass bevel gears within an alloy housing and works extremely well. The only drawback is that it is currently available with *ATP* or *Associated* wheel systems only, and gear ratios are awkward to change.

George Land and I were given trial samples of the new *Delta* diff. This is simple to use, easy to change ratios (only two gears provided though) but is again limited to *Delta* or *Associated* style wheels. Our samples were less durable but I must stress they were prototypes only. With some refinement this could prove an excellent alternative to the current offerings. The main attractions of geared diffs are the 'no slip' feature and the very low maintenance required. Watch out for future developments in this area.

Marshal your thoughts

The standard of marshalling at recent events I have attended has reached an all time low. I am as guilty as the rest of you, shouting for assistance from the rostrum even before my car has finished its accident, but I still find myself waiting the odd few

Right: Cecil Schumacher's Mk III differential, a technical progression from his first production diffs which met with blanket acceptance from 1/12th scale drivers. Copies of Cecil's brainchild exist, but this is the original.




minutes for the cries of help to reach the dozy twit at the trackside who's chatting away merrily to his mate. This sort of behaviour was evident even at the Watford National in February and at that level it is inexcusable.

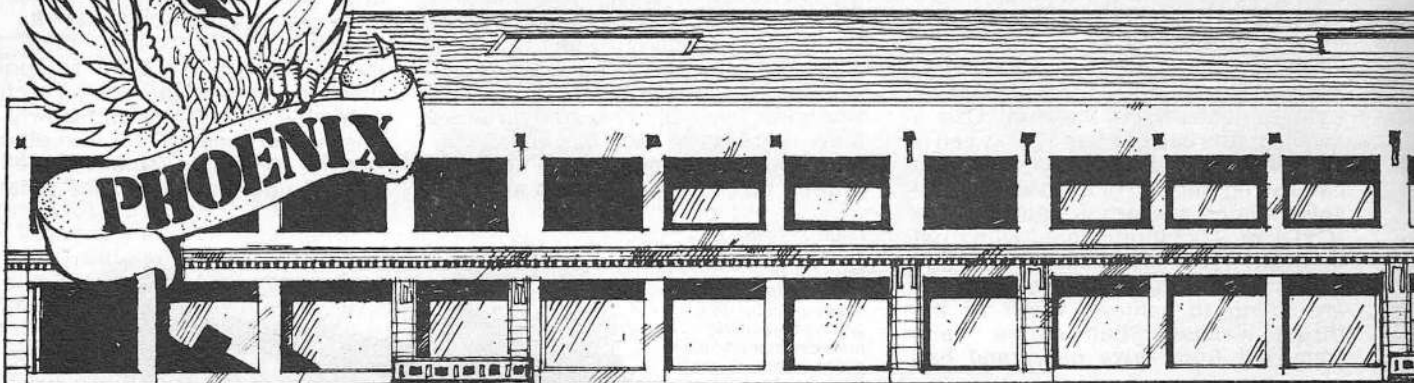
You are not at trackside to watch the race, but to keep a wary eye on the section of track nearest you and put cars which get into difficulties back onto the circuit as quickly as possible.

Pay as much attention to this job as you do to your driving, it is most important. Unless the quality of marshalling is kept high then some of the enjoyment of racing is lost, and that means people will leave the sport. Try following these few do's and don't's to improve your marshalling technique.

(1) Note areas in the section of track that may cause problems, e.g. enclosed areas within those tight corners etc.



The Phoenix has



Phoenix Models & Toys

Phoenix Models & Toys

Phoenix Models & Toys

<p>CONTINENTAL RAILWAYS AMERICAN RAILWAYS BRITISH RAILWAYS BUILDING KITS CARDBOARD MODELS SECOND HAND RAILWAYS</p>	<p>PLASTIC AIRCRAFT SPACE MODELS CARS AND MOTORCYCLES DIE CAST CARS AND BUSES AND PLANES MODEL GUNS</p>	<p>RADIO CONTROLLED BOATS AND FITTINGS AIRCRAFT CARS AND TANKS SCALETRIX</p>
---	--	---

Phoenix Supershop.....

one of the

and ensure you keep a close eye on them.

(2) If someone gets into trouble, cross the circuit quickly between the traffic. If the accident is some way from you travel around the edge of the track to get as near as possible before crossing the circuit.

(3) Wherever possible move around the circuit close to the track markers, not down the middle of the course.

(4) When replacing cars on the track put them down close to the edge, and where the driver can see it. Don't push cars into the oncoming traffic.

(5) If you get stuck in the middle of the circuit for any reason, duck down so as to obstruct drivers' view as little as possible.

(6) PAY ATTENTION

Unfortunately much of this criticism is levelled at the better drivers amongst us. Usually those in the last heat who have to pay penance for being superstars and marshal the first heat.

Backlash

Nigel Hale and Wayne Davis produced a marvellous double act at the Washington National Meeting to win both classes for Team Associated and

Jim Davis Models. Both drivers, however had to deal with the incomparable driving skills of Andy Dobson who led for the majority of both races. Unfortunately Andy's Ni-Cads flattened at the seven minute mark (surprise, surprise) and the race was lost.

The equipment race is really hotting up in readiness for the Danish World Champs in August. Schumacher and Trinity Products have now combined forces to give Andy Dobson the motor and Ni-cad back up needed to compete with the Associated Challenge.

Delta are rumoured to have a new rear, anti-sway device in production soon for their Delta 'Phaser' car. The 'Phaser' design has remained virtually unchanged since the last World Champs in 1982. Arturo Carbonel, modified class World Champion, is unlikely to travel to Denmark to defend his title.

The Demonic duo of Nick Adams and Grahame Davies have been producing and testing new chassis' for the 'MF 83' after the car's poor showing at the Danish International. At present none of the World Champs qualifying drivers will be using Demon Cars although Graham, Nick and Jane Adams have qualified for the Eurochamps.

Parma International are still produc-

ing different prototypes of the 'Panther' at a bewildering pace, some from the Mother factory in Cleveland, Ohio, USA, others from the UK team drivers. This frenzied activity amongst the satin-jackets looks likely to continue up to, during and beyond the August event.

What will be the latest Associated Ni-cad charging methods and who, amongst the 30 or so Associated drivers will be getting full team support. Mike Reedy assures us it will be only nine or ten (is that all!) but is not saying who.

The Eurochamps in VLM, West Germany will be the stomping ground for the next Associated/Trinity confrontation. A very strong British team will be attending as mentioned in the last issue. A full report will feature in 'Model Cars' and we hope to be able to fly the flag. However European drivers have made great strides forward now that, they too, have the manufacturers backing. If nothing else this will ensure a highly entertaining, closely fought race.

Finally; correspondence concerning 1/12th electric racing is a rare and wondrous thing, perhaps this reflects the current state of our racing scene. Why not write to me, care of Model Cars office, and let me know what you think.

risen..!

at 580-612 Hyde Road
Belle Vue Manchester

061 223 9626



Phoenix Models & Toys

Phoenix Models & Toys

Phoenix Models & Toys

MILITARY MODELS
METAL FIGURES
15mm 25mm 54mm 70mm
80mm 90mm 110mm
WAR GAME FIGURES
HISTORIC FIGURES

AIR BRUSHES
PAINTS AND DECALS
CEMENTS AND CLAYS
VAC FORM TOOLS
SCENIC MATERIALS

INDOOR RADIO CONTROL
BOATING LAKE
OPENING SOON

INDOOR LANDSCAPED
RACING TRACK FOR
ELECTRIC CARS

BOOKS AND MAGAZINES
JIGSAWS
AND MUCH MUCH MORE

worlds largest hobby shops

Starting Point

Get to grips with R/C electric buggy racing with the Model Cars guide

ELECTRIC OFF-ROAD buggy racing is undoubtedly *the* most popular aspect of the radio control car racing hobby. Literally, tens of thousands of kits have been sold ever since Tamiya launched their 'Rough Rider' Buggy. Not all of these cars and their drivers are involved in competition racing, instead racing on a regular competitive basis is just the tip of the iceberg. The vast majority of cars never get further than a thrash around the local park or piece of waste ground. This then is one of the fundamental reasons why buggies, particularly the electric variety, are so popular. Nevertheless, racing against other drivers in an informal atmosphere at a local club can only serve to heighten the enjoyment.

Electric buggy kits are produced to a scale of 1/10th full-size, they are driven by a small, powerful electric motors and powered by rechargeable, Nickel Cadmium (Ni-Cad) batteries. Two function (throttle and steering) radio control equipment provides the means to guide your buggy wherever you want it to go.

What kit to buy

With such a wide range of different types and makes to choose from, choice of which kit to buy is really up to the individual. Fortunately, and almost without exception, electric buggy kits are produced as fully comprehensive components packages. The Japanese manufacturers, who almost dominate the market, have set a superb example and all products from this source feature, no-fuss step by step construction, idiot-proof instructions with all parts fitting perfectly. Of course we're not suggesting that a child of ten would find it simple, but with a little adult guidance no problems should be encountered.

Three basic guidelines should be considered before buying, the first of which is, of course, price. How much you wish to spend is entirely up to you, although it is worthwhile to shop around before actually parting with the cash. Take a look at the mail-order advertisers in this issue and see who is offering the best deal. Many model shops will supply the complete racing package, kit, radio control equipment, batteries and charger at reasonable discounts. Be sure to remember that the most expensive is not necessarily the best buy for you, a competition special

machine is all very well — for competitions, but if all you want is some fun racing in the local park then it makes sense to budget accordingly.

Second on the list of priorities is spares back-up. As rugged and durable as they are sooner or later you are going to break something. Without a readily available spares source, racing time is going to be cut short until the replacement arrives. If you bought the car by mail order then spares should be available the same way. However, you may find that the local model shop can supply or order the necessary part for you, with this in mind it makes sense to buy the kit from them in the first place.


Third and last on the list is where to go for help and guidance when




something goes wrong. Once again, a nearby model shop can provide the best source (particularly if you are a

TAMIYA


1/10 OPEL ASCONA 400 RALLY




1/10 AUDI QUATTRO RALLY




1/10 LANCIA RALLY



1/10 SUBARU BRAT



1/10 SUPER CHAMP




Kit Titles: Superchamp; Subaru Brat/Lancia Rally; Audi Quattro/Opel Ascona; Frog.

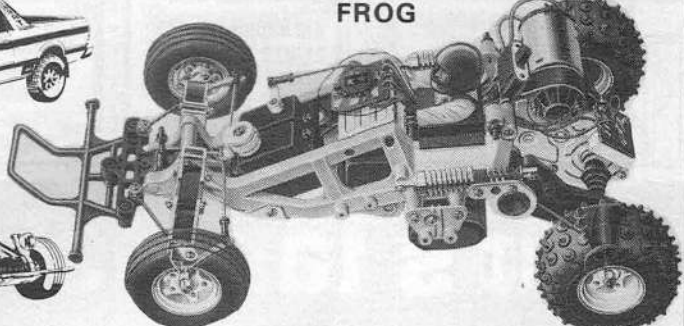
Availability: Excellent; all kits can be obtained from most good model shops, high street stores and mail order catalogues. Spares back-up from the latter will be virtually non-existent.

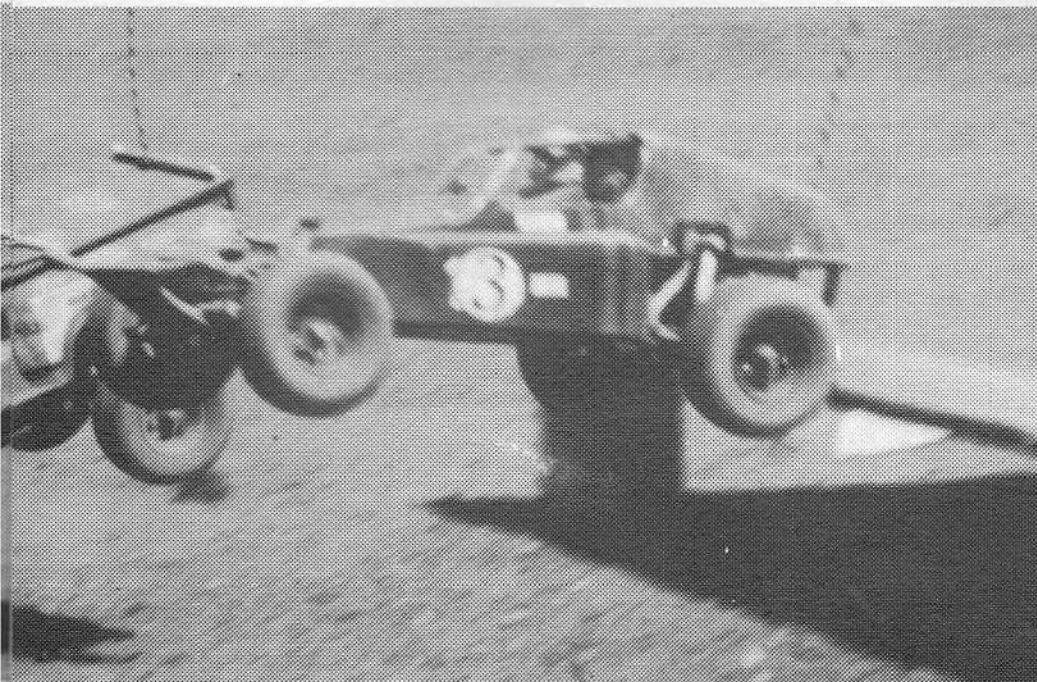
U.K. Distributor: Richard Kohnstam Ltd., 13-15a High Street, Hemel Hempstead, Herts.

Comment: Tamiya kits cover the racing Spectrum from fun machines to competition based types. Prices range accordingly. All kits feature ease of construction and superbly produced components.



FROG





Above: the thrills and spills you can expect to experience with electric Off-Road buggies.

paying customer). A model shop owner should know about the products he sells and if he does not

then is bound to know someone who does, possibly from the local club.

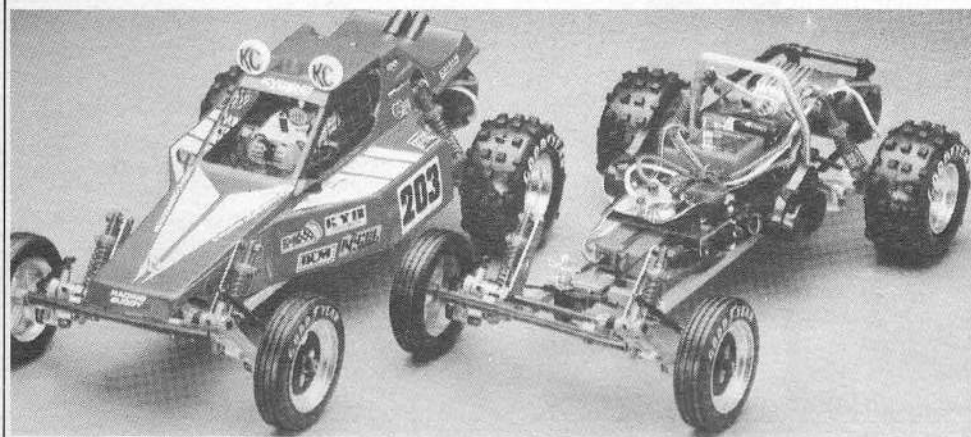
Below is a list of what is available

with some explanatory notes, before making up your mind make an attempt to view your choice (or choices) either at the model shop or nearby buggy racing club

What else is needed?

This is radio control car racing so you will need some radio control equipment. Price is the only consideration here as the technology involved in modern systems is such, that reliability is not related to cost. More expensive systems cost more simply because they do more, they have more functions. All the major manufacturers produce budget priced equipment which is ideal for the job in hand. Once again shop around but remember if you are unsure of anything then a visit to an Off-Road racing club or model shop will put you in the right direction.

All electric buggies are designed to be powered by either five or six cell, rechargeable, Nickel Cadmium battery packs. These packs are usually sold as extras to the kit itself and can retail for anything below £20.00. A Ni-cad pack can be recharged a great many times and will usually give between five and ten

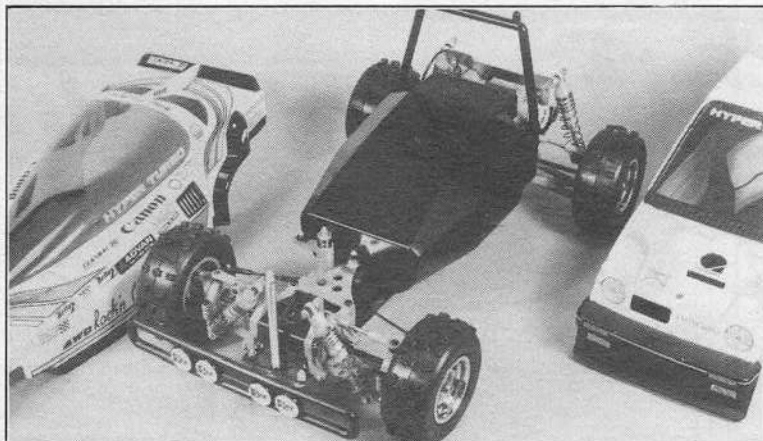


KYOSHO

Kit Titles: Scorpion; Beetle; Tomahawk.
Availability: Good; can be obtained through most model shops via mail order. Spares back-up from the same source.

U.K. Distributor: Ripmax Models, Ripmax Corner, Green Street, Enfield, Essex.

Comments: All three kits, lean toward the competition side of the market and as such have proved highly popular. Despite this, these kits can be built and driven straight from the box.



HIROBO

Kit Title: 'Rock 'n' City' 4WD.

Availability: Fair, can be ordered through the local model shop or else direct via mail order from UK distributor.

U.K. Distributor: Dave Nieman Models, 34 Watford Road, Sudbury, Wemley, Middx.

Comment: The only four-wheel drive electric buggy available for competition use. The Rock 'n' city features a much more complicated drive system than its rival but reliability of construction is every bit as high.

Starting Point

minutes racing time on a single charge. Re-charging will take approximately fifteen minutes before another run can be enjoyed, with this in mind price-per-charge is extremely low when compared to ordinary dry cell batteries.

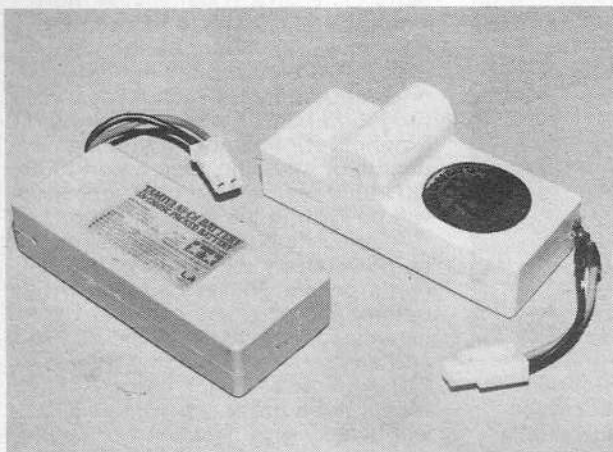
Charging Ni-Cads is another important area of control to be covered. Chargers usually operate from a 12 volt source, the most popular source being a lead acid car battery. The chargers themselves

come in a variety of guises and can range from simple resistance type chargers to very complicated, charge monitoring, peak detecting versions. For what we need, a charger incorporating an automatic cut-off is necessary. This type of charger will monitor the charge until the Nicads reach their peak and then revert from full charge to a trickle charge thus avoiding over charging. A charger of this type, is not too expensive (around £20 — £30) and once again

it may pay to shop around. However do make sure you buy a proper fast charger it will be worth the money in the long run.

Where to Race

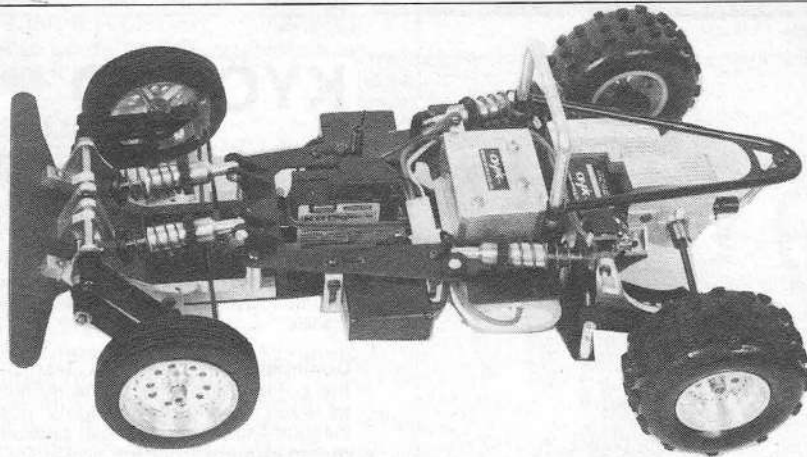
Now that your car is built and ready to go the last problem to be overcome is where to race it. Driving around the park is all very well but racing with other enthusiasts of a like mind is far more enjoyable. To find a club near to you may be difficult



Left: two types of Ni-Cad battery pack produced by Tamiya. These 5 and 6 cell packs are enclosed in a tough, watertight, plastic casing for protection.



Right: typical middle price range, set of R/C equipment. This two-function system incorporates all the necessary components to get you moving.



AYK

Kit Titles: Trail Blazer; Side Winder.

Availability: Fair, through most model shops or direct via mail order from U.K. Distributor.

U.K. Distributor: SRM Racing, 140 West Street, Fareham, Hants.

Comments: Once again two competition based machines featuring the very best in Japanese kit manufacture.

BOLINK

Kit Title: Digger 10.

Availability: Fair, through most model shops and direct from UK Distributor.

U.K. Distributor: Cecil Schumacher, 'Rudge', Church Brampton, Northampton, NN6 8AV.

Comments: Suitable for all levels of driver skill from novice to expert. Less sophisticated suspension and drive systems and very durable construction will ensure a minimum of breakages. Spares (if needed) can be obtained direct from the distributor.



JIM DAVIS MODELS

NO1 STOCKIST

STOP PRESS

20% off all associated kit-spare

OF ALL Associated 1/12th 1/10th 1/8th Car Kits and accessories

Everything for the model racing driver and sportsman. For the 1/12th driver, we have the new front end in stock now.

Associated tyres at special prices and front tyres to match in super soft and green

Standard kit rear only	£2.40 save £1.10
Yellow dot rear only	£2.60 save £1.20
Green dot rear only	£2.60 save £1.20
Red dot rear only	£2.60 save £1.20
Selected reedy standard water dipped and broken in o5	£8.25
Still the winning cells-Associated Sanyo	£17.25
Reedy yokomo modified-all dot, including the new yellow dot	£34.95
New light weight Bobys Jaguar group c bodyshell, TOJ, T600 & mirage	£7.10
12iS - The complete carpet car racing kit	£99.95



JIM DAVIS MODELS LTD

MAIL ORDER DISCOUNT WAREHOUSE
Unit 4, The Parkway, Heneage Street, Birmingham
B7 4LY Telephone 021-359 0828/9

P&P Engines 95p Radios £1.75 Deals £2.50

JIM DAVIS DYNAMITE BUGGY DEALS

Buggies

**Holiday Buggy,
or Sand Rover.**

Normal Price £49.99

Special offer

£34.99

**Rough Rider
Sand Scorcher
Ford Ranger**

Normal Price £89.99

Special offer

£62.99

Blazing Blazer

Normal Price £129.00

Special offer

£89.95

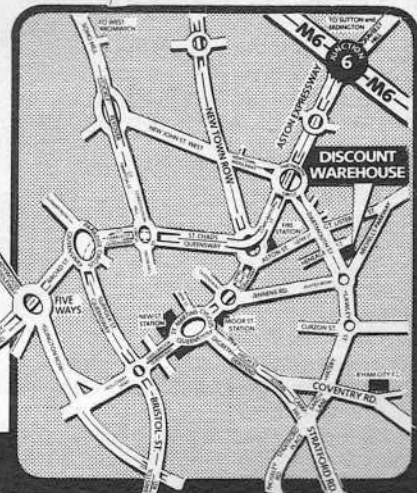
**Two
channel
radios**

**Sanwa
GS200 £35.00**
with two servos

Acoms £37.50
with two servos

**Futaba
2MR £36.00**
with two servos

**Buy now before price
increase!**



JIM DAVIS MODELS LTD

**MAIL ORDER DISCOUNT WAREHOUSE
Unit 4, The Parkway, Heneage Street, Birmingham
B7 4LY Telephone 021-359 0828/9**

2-Stroke Terminology

Come to terms with the language and principles of R/C car engines

Two stroke IC engines

Ever since the first publication of 'Model Cars' as a quarterly magazine, Engine Tests have formed an integral part of the magazine. All of these engine tests can provide the informed readers with a wealth of mechanical and performance data on the engine under scrutiny but the emphasis has been on the adjective — informed.

There are many terms and definitions that younger readers particularly may find puzzling and even readers who have been handling such engines for quite some time, do not fully understand. In an endeavour to help readers gain more from reading these tests, the following explanation and glossary of terms is presented.

Two stroke principles

A more accurate definition is probably used by Americans, they call these engines, '2-Cycle' motors for reasons which will soon become clearer. Without wishing to go into the history of 2-stroke development and origins too deeply, the engine is based on the 'Otto' cycle named after its inventor. At its very simplest the 2-stroke has just four moving parts if the Gudgeon pin is counted. They are ... Crankshaft, Connecting Rod, Piston and Gudgeon Pin. The cycle of operation is ...

(1) The piston moves up the cylinder producing a decrease in pressure in the crankcase thus causing a mixture of fuel and air to be drawn into the crankcase.

(2) The piston moves back down the cylinder compressing the fuel/air mixture which is then forced into the combustion chamber.

(3) The fuel/air mixture is compressed then ignited by the glow-plug whereupon it burns, expands and drives the piston downwards.

(4) Expanded gases are expelled through the exhaust port.

In practice operations 1 & 3 occur simultaneously as the piston goes up, 2 & 4 likewise as the piston moves down therefore the two cycles are Compression/Induction and Combustion/Transfer. See Fig. 1.

There are various methods of admitting the fuel/air mixture into the crankcase normally described as Side Port, Front Rotary, Rear Rotary or Reed Valve each of which has peculiar advantage and disadvantages. For the purpose of this glossary Front Rotary systems will be covered, the remaining systems should be readily understood once the front rotary principle is grasped.

Fig. 1

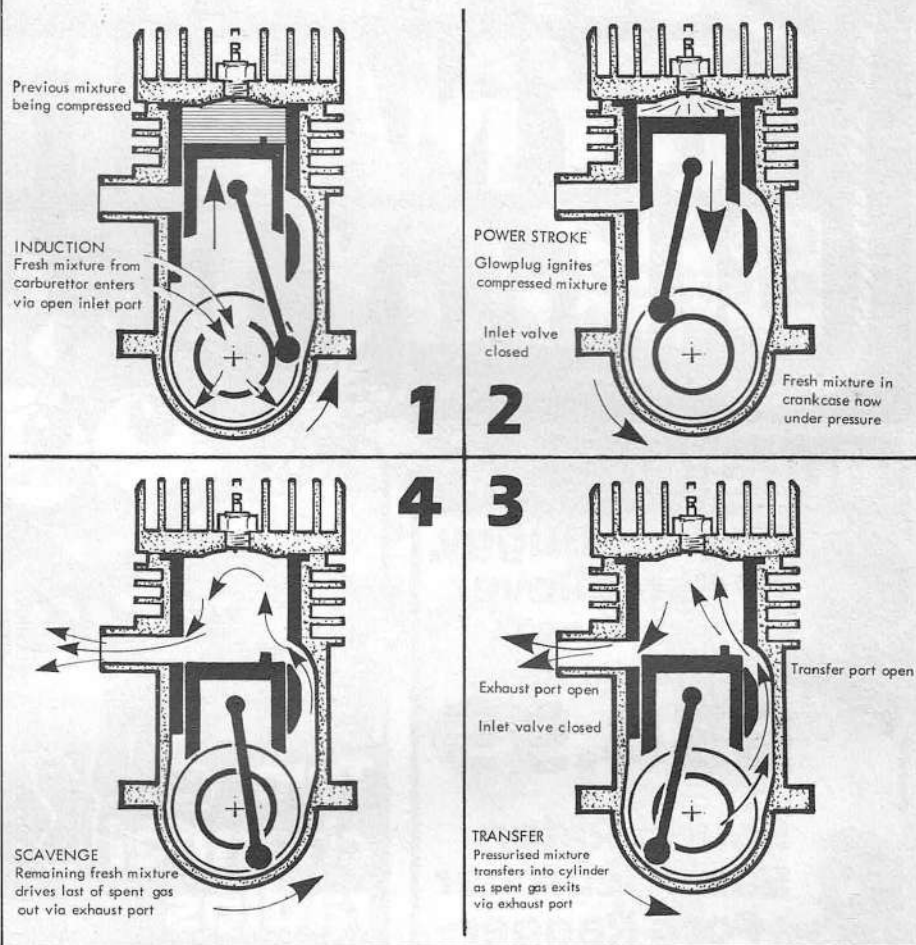
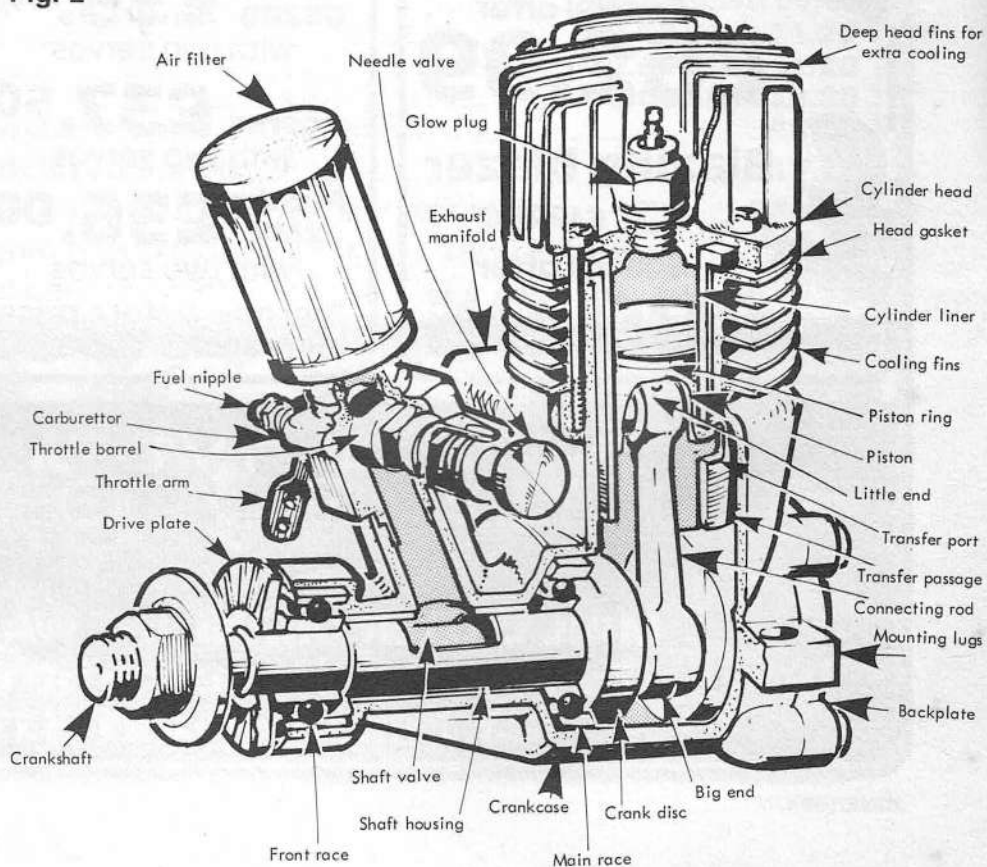


Fig. 2



Glossary of Terms

A

AAC — Aluminium, Aluminium Chrome. Cylinder/Piston material combination. (See ABC).

ABC — Aluminium, Brass, Chrome describes the materials used for cylinder/piston manufacture i.e. an aluminium piston running in a Chromed Brass Cylinder. Cuts down friction losses associated with ring sealed pistons.

B

BIG-END — the larger or lower end of the connecting rod (con-rod) which runs on the crankshaft crankpin.

BOTTOM END — usually refers to the crankshaft, crankshaft bearings and connecting rod of the engine.

BEARINGS — these are the contact areas between moving parts of the engine usually the rotating parts are referred to. Can be either plain metal bushes or ball bearings or roller bearings. High performance engines are usually fitted with ball bearing mounted crankshafts.

BACK-PLATE — cover which seals the rear crankcase opening.

BOTTOM DEAD CENTRE — piston at the lowest extent of its travel in the cylinder.

BRONZE — Aluminium Bronze or Phosphor Bronze both used as bearings materials for Big end bearings. An alloy based on Copper.

BORE — Internal diameter of the cylinder.

C

CONNECTING ROD — transfers the reciprocating motion of the piston to the Crankshaft.

CYLINDER — tubular barrel that forms the combustion chamber in which the fuel/air mixture is burnt and also incorporates openings to form inlet, transfer and exhaust ports. Can be made from a variety of materials, aluminium, steel or brass.

CRANKSHAFT — converts the reciprocating movement of the piston into rotary motion. In front induction motors incorporates the inlet timing, porting.

CRANKCASE — houses all the separate parts of the engine and incorporates the mounting lugs.

CARBURETTOR — mixes the fuel and air for combustion and controls the quantity admitted to the engine.

COMBUSTION CHAMBER — area at the top of the cylinder where the fuel/air mixture burns. Given its shape by a cavity in the cylinder head.

CYLINDER HEAD — seals the top of the cylinder and houses the glowplug.

COMPRESSION RATIO — ratio of the volume of the cylinder with the piston at Bottom Dead Centre to the volume with the piston at Top Dead Centre.

CAPACITY — the swept volume of the engine i.e. the volume displaced by the piston moving from TDC to BDC.

CIRCLIPS — A spring retaining device frequently found holding a gudgeon pin into piston.

D

DIESEL — principle of internal combustion developed by German scientist Diesel. Compression heats the fuel/air mixture up to ignition point. No spark or glowplug required for pure diesel engine which needs a compression ratio in excess of 16.5:1 to generate sufficient heat.

E

END FLOAT — small amount of free movement of the engine crankshaft to promote free running. Not usually needed on ball race supported crankshaft.

EXHAUST PORT — opening in the cylinder wall to allow exhaust gases to escape.

EXHAUST TIMING — expressed in degrees of rotation, the period during which the exhaust port remains open.

EXHAUST MANIFOLD — a fitment to couple the exhaust of the engine to a silencer.

F

FRONT ROTARY — a system of control for inlet of fuel/air mixture to the engine which uses a port cut in the crankshaft to admit gasses.

G

GUDGEON PIN — joins the piston to the little (small) end of the connecting rod.

GLOWPLUG — incandescent elements which ignites the fuel/air mixture.

GLOW IGNITION — converts pure diesel into Semi Diesel by supplementing the heat generated by compression with a glow plug to allow use of lower compression ratios and less volatile fuels.

I

Internal Combustion (IC) a system where the combustion and conversion of fuel into work is carried out in an enclosed space. A glow motor is Internal Combustion, a steam engine features external combustion.

J

JET — an orifice through which fuel is metered into the carburettor.

L

LITTLE END — the upper end of the connecting rod.

M

MOUNTING LUGS — lugs for bolting the engine to the model complete with holes drilled to accept suitable size bolts.

MAGNESIUM — very lightweight metal used for items such as heatsinks.

METHANOL — major constituent of glow fuel.

MINI PIPE — exhaust silencer which imparts a tuning effect on the engine and boosts power output.

O

'O' RINGS — a circular sealing ring usually made from neoprene.

P

PISTON — reciprocating item upon which the expanding gases act during combustion process and which also compresses the fuel/air charge during compression stroke.

PLUG — see glow-plug.

PORT — an opening in cylinder or crankshaft to admit or pass gases involved in the two stroke cycle.

PAD — low friction pad which when fitted into the piston prevents the gudgeon pin from scoring the cylinder walls.

PISTON RING — a hard springy sealing ring fitted to the aluminium piston.

R

ROTARY VALVE — crankshaft valve which admits fuel/air mixture to the crankcase.

RING — See Piston Ring.

S

SHAFT — See Crankshaft.

SQUISH BAND — area around the periphery of the combustion chamber which has a very small clearance from the piston at TDC which causes the compressed gases to be very actively swirled into the combustion area.

SCHNEURLE PORT — a system of transfer porting which enables additional fuel/air mixture to be injected into the cylinder.

SEAL — the close fit of the cylinder to piston that is essential for good induction and compression.

SYNTHETIC OIL — a chemically engineered lubricating oil which is not petroleum based.

STROKE — the travel of the piston.

T

THROTTLE — See Carburettor.

TORQUE — rotary force generated by the engine.

TDC — Top Dead Centre — of the piston.

TUNED PIPE — a power boosting exhaust system.

OPS 3-5cc Rear Exhaust CAR



THIS MONTH'S TEST is of the 1983 engine as used at the World Champs in Carnoux and in the view of many, is arguably the 'market-leader' in terms of power and reliability combined. It is the third OPS 3.5 car engine to be reviewed in this series, with detail improvements again being featured rather than any large scale design changes; once again the small subtle alterations have provided another higher 'bench-mark' of power output, whilst determinedly holding on to that highly regarded and hard-won reliability so much a feature of modern OPS engines.

Mechanicals

Externally, little has changed from the 1982 R/E model — the sand-cast **crankcase** is still used, though, with the modification that the Rear Exhaust stack is now appreciably opened out downwards to remove flow restriction.

Crankshaft; now has improved shaping at start of induction bore (itself still at 9mm), whilst timing is altered to a large total period of 209° — this extra 26° being made up by 13° earlier opening and 13° later closing.

Liner; still in brass and chromed internally, this now has top and bottom

edges of *all* ports angled: exhaust down 20°; transfer up 20°; and boost up 60° (was 50°). Bore size .002in. tight at TDC.

Connecting rod; now reduced slightly in weight by minor machining of non-load bearing areas. Still of high-duty alloy — bushed at big-end only, with one lube hole on non-thrust leading side.

Cylinder-head; heatsink is of improved design — rough cast heat-dissipating finish — ¼oz. heavier with fins more widely spaced (6mm instead of earlier 4mm) and taller, extending down below liner flange.

The combustion chamber separate insert undergoes an interesting change in view of the very tight squish

clearances previously used by OPS. Instead of the usual flat squish band (horizontal or angled up) there is now a trumpet-style chamber — achieved by 'rounding-off' the previous sharp-cornered squish band. Clearance is now set at a much larger .022in. (3 × .008in. and 1 × .004in. gaskets were fitted to this test engine to this writer's initial consternation!) Previously squish has been cut right down to .005in. As trumpet heads have often been most effective at high compression ratios and tight clearances, this latest OPS set-up seems a clear move towards greater long-term reliability of both engine and glow-plug element. To a large extent therefore OPS have apparently sacrificed some of a certain power gain to increase general running reliability. OPS have further advised that engines for use in UK are set up with larger clearances (probably to offset the generally denser air due to lower average temperatures).

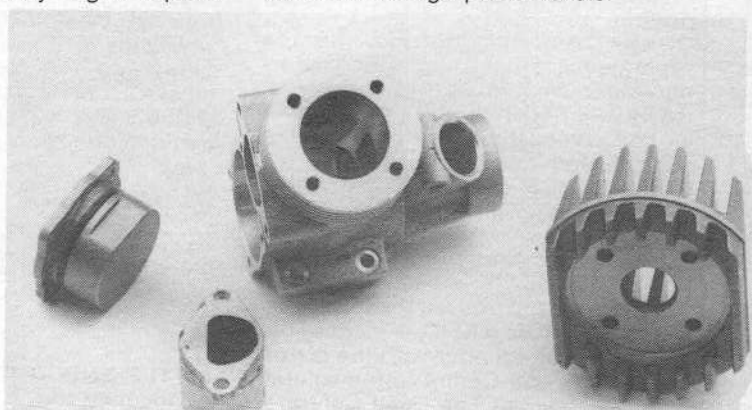
Slide carburettor; continues with the 9mm bore — but is now modified to incorporate the more conveniently placed vertical needle fuel valve.

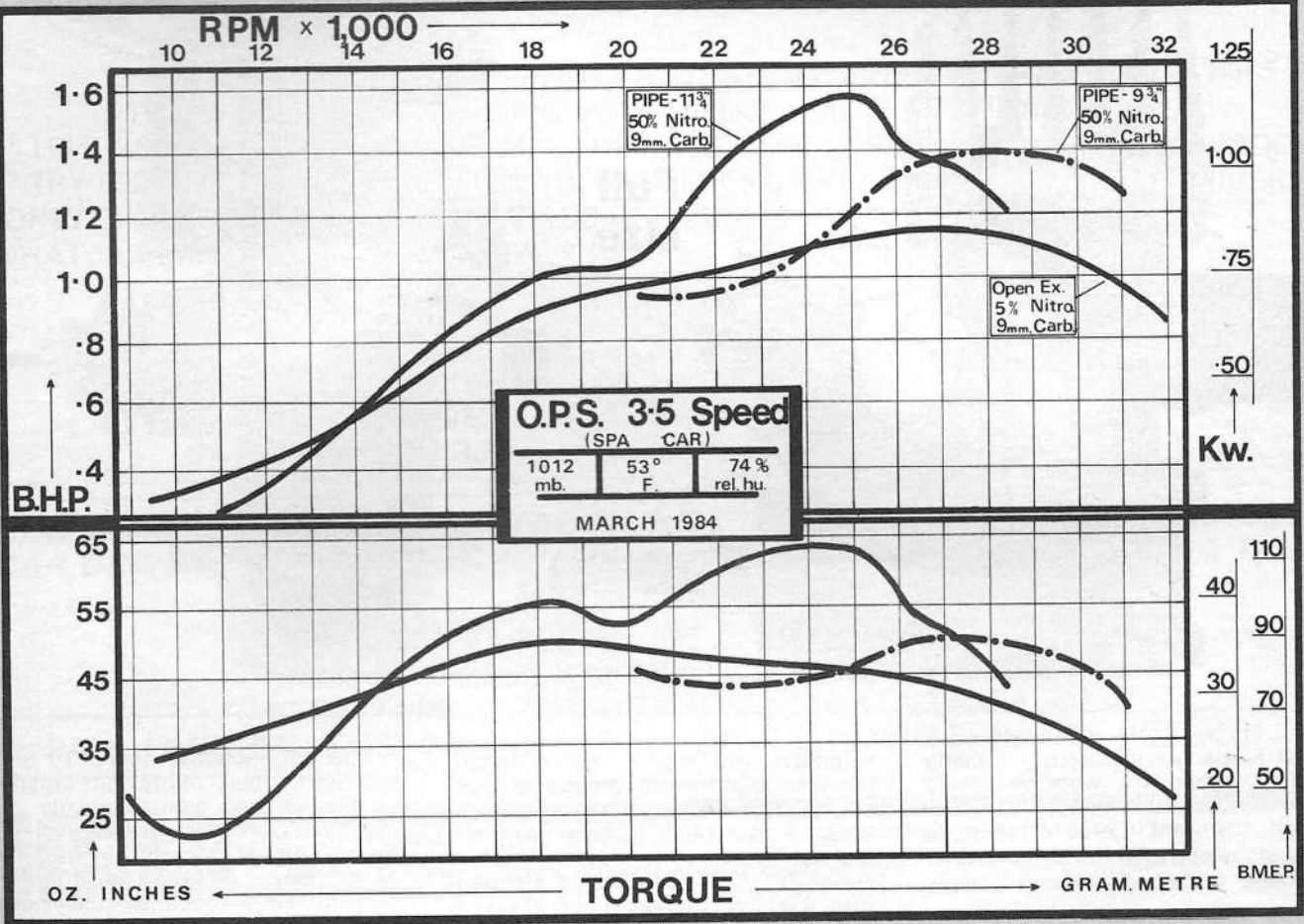
Backplate — again uses 'O' ring sealing method, but interestingly this is now reinforced by addition of a normal paper gasket.

Running-in and rpm checks

This manufacturer is now almost at the point of advising users *not* to run-in their (ABC) engines — so strong is their advice to operate at maximum bhp points and at temperatures of normally expected use. Their other related strong point is towards cleanliness of operation. The writer's experience is that commonsense application of both these 'principles' can result in consistently reliable performance at high power levels.

Right: cast components of the OPS 3.5 showing O-ring sealed backplate sand cast crankcase and improved heat dissipation cylinder head.





OPS 3-5cc RE CAR

Dimensions and weights

Capacity — .212cu. in. (3.48cc).
 Bore — .655in. (16.6mm).
 Stroke — .631in. (16mm nominal)
 Stroke/Bore ratio — .96/1.
 Timing periods — Exhaust 162°
 — Transfer 126°
 — Boost 124°
 — Front induction opens 30° ABDC;
 closes 59° ATDC; total 209°.
 Exhaust port height — .213in.
 Combustion chamber volume — .36cc.
 Compression ratios — Effective 7.4/1;
 geometric 10.6/1.
 Cylinder head squish/angle/width —
 Continually flared trumpet shape —
 (min. clearance .022").
 Crankshaft dia. — .4722in. (12mm).
 Crankpin dia. — .1966in. (5mm).
 Crank bore dia. — 9mm.
 Crank nose thread — .244in. x 28tpi.
 (1/4 UNF).
 Gudgeon pin dia. — .1572in. (4mm).
 Con-rod centres — 30mm.

Height — 3.59in.
 Length — 2.7in. (To front of prop.
 driver).
 Width — 1.72in. (Across lugs).
 Width between bearers — 1.18in.
 Mounting holes — 16 x 36 mm x 3mm
 holes.
 Frontal area — 4.94sq. in.
 Weight (with 9mm carb.) — 10 1/4 oz.
 (.29Kilo).

Performance:

Max. BHP — 1.57 at 24,930rpm (OPS
 pipe/50% nitro./9mm carb.); 1.16 at
 26,510rpm (open ex./5% nitro./9mm
 carb.).
 Max torque — 63oz. in. at 24,210rpm
 (OPS pipe/50% nitro.); 50oz. in. at
 17,640rpm (Open ex./5% nitro.).

RPM standard propellers

8 x 6 Zinger — 16,410 (Open Ex./5%
 nitro.).

7 x 6 Taipan — 19,210 (Open Ex./5%
 nitro.).
 7 x 4 Taipan — 24,900 (Open Ex./5%
 nitro.).

Performance equivalents

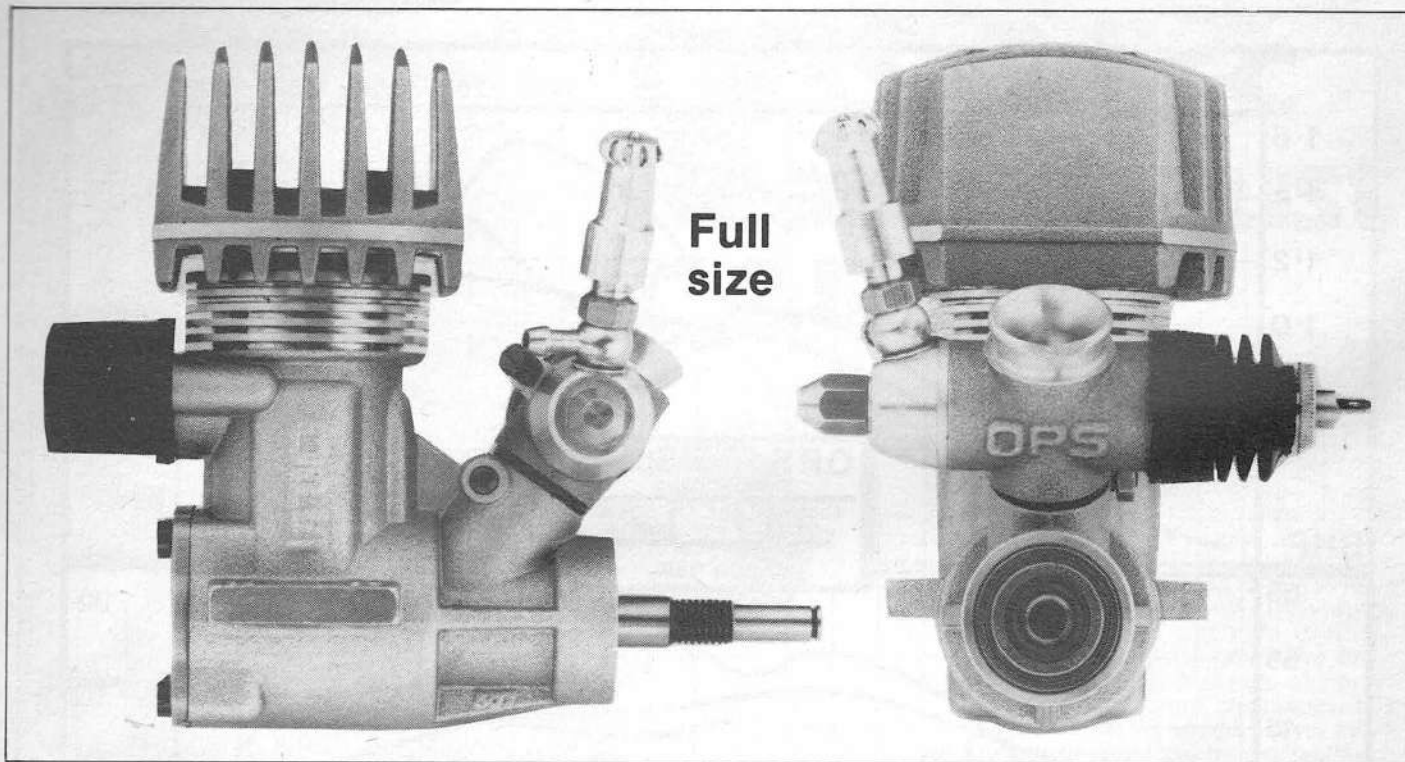
BHP/cu. in.	7.4
BHP/cc	.45
Oz. in./cu. in.	297.1
Oz. in./cc	18.1
Gm metre/cc	12.93
BHP/lb.	2.45
BHP/Kilo	5.41
BHP/sq. in. frontal area	.32

Manufacturer

OPS, Monza, Italy.

UK Distributor

OPS Distribution Ltd., 512 Berridge
 Road West, Hyson Green, Nottingham.



RPM levels reached early on, using standard propellers were markedly higher than previous best figures — though different carburettor bore sizing made some of the comparisons uncertain.

Power test 1

Equipment - Open Exhaust/5% nitro./15% Castor/9mm carb./OPS 300 plug.

Consequent on the high rpms just seen, it was no surprise that torque readings were soon up to the 50oz. in. mark. (a figure not long ago deemed respectable whilst using tuned-pipe and 50% nitromethane!) Also, good torque was maintained even in the post-30,000rpm area.

Power test 2

Equipment - OPS tuned quiet pipe (rubber silencing can style) at 11 $\frac{3}{4}$ in. plug to end can./50% nitro./10% ML70 and 5% Castor/9mm carb./OPS 300 plug.

Using the OPS recommended length for this pipe proved that the factory have done much work on pipe

selection and length determination, because band-width proved acceptably wide plus being at high power level — the final 1.57bhp was the highest figure yet recorded in this test series for 3.5cc engines in standard trim. It is likely that reduction of squish to around .010in. would increase power up to 1.7bhp using above equipment. This appears to tie in with an OPS figure of 1.57bhp on tuned pipe and 25% nitro. (Probably on tight squish). The officially quoted 1.3bhp at 27,000 for the car engine refers to straight fuel and pipe.

Power test 3

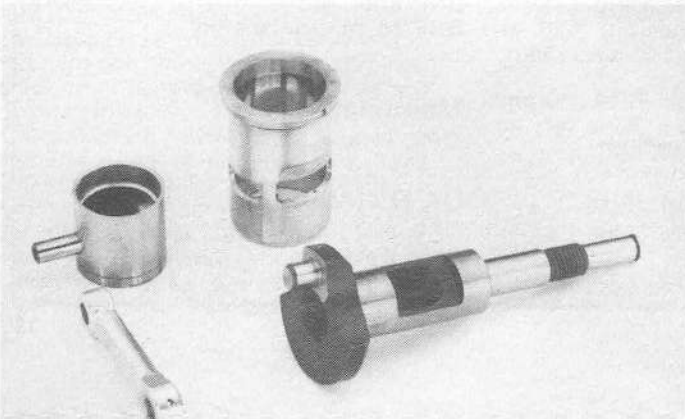
Equipment - OPS pipe now at 9 $\frac{3}{4}$ in. plug to end can. Other spec. as test 2.

In pursuit of further information, this higher rpm curve revealed the usual sideways shift up the rpm scale when pipe is somewhat shortened. As noted before, handling became more critical at 'correct' pipe resonance and beyond, with general performance being more ragged and inspiring less confidence than when using the recommended length of 11 $\frac{3}{4}$ in.

The only negative aspect to report has been subject of previous comment — the 'O' ring seal to needle valve movement became progressively stiffer to operate when using high-nitro fuels. Deeper 'knurling' was filed into control knob because the normal shallow knurling provided inadequate finger grip following onset of this problem. As mentioned before — in actual car use, such stiffness could be a boon — preventing unwanted movement of precise settings — but on the dynamometer where continual variability of settings is required, it's a problem. Strangely, from some enquiries made, the writer appears to be alone in having this problem... could be an interesting separate subject for a full test!

Summary

With each succeeding test in this series, the subtle confidence generating qualities of OPS engines have become more manifest to this writer. Amongst the more positive aspects is a truly clean, wide-band, and storming performance on tuned pipe (when at recommended length) such as has rarely been the case with most of the competitive motors in this class. This must indicate considerable work has been undertaken by the manufacturer in this one area alone, quite apart from the necessarily related mechanical reliability features continually being incorporated in order to withstand the strong power outputs likely with correct pipe performance. The way of the racing-engine manufacturer is hard indeed.



Left: internal OPS components, piston and con-rod liner and crankshaft. The latter is already finished for use with the SG 'Columbia' clutch system. Other types are available.



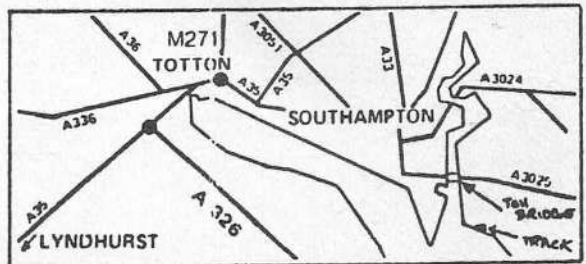
EVER READY BRITISH GRAND PRIX

WESTON SHORE SOUTHAMPTON ON
30th JUNE/1st JULY 1984

PRACTICE FRIDAY 29th - SPORTS/G.T. CARS

TWO FULL DAYS OF RACING WITH FINALS FOR THE TOP 88 DRIVERS.
PLUS 5-25%, 25%+, & CLUBMANS H/CAP FINALS, SURELY SOMETHING FOR EVERYBODY!
ENTRY FEE ONLY £10.00 FOR THE WHOLE WEEKEND (FREE MOMENTO TO ALL DRIVERS).
FORTY TWO TROPHIES, AND ONLY 100 DRIVERS.
WHAT SUPERB VALUE FOR MONEY!

ENTRIES TO:
MR. E. WHITE,
5 WORTLEY DRIVE,
OUGHTIBRIDGE,
SHEFFIELD S30 3JH.



DON'T MISS THIS FABULOUS OPPORTUNITY TO SEE EUROPE'S BEST I.C. MODEL CAR DRIVERS IN ACTION. IF YOU HAVE NOT SEEN 1/8th SCALE RACING THEN THIS IS FOR YOU.

EXCITEMENT ALL THE WAY!

FULL AMENITIES AND REFRESHMENTS ON SITE.

FOR SPECTATOR INFORMATION, PLEASE SEND S.A.E. TO:

PAUL LANDELS, 9 REEDMACE CLOSE, WATERLOOVILLE, HANTS PO7 8HH.

HOWES

9-10 BROAD STREET, OXFORD OX1 3AJ. TELEPHONE: (0865) 242407

Post & Packing 75p per order. Overseas shipped at cost.
BARCLAYCARD, ACCESS — ALL WELCOME. Orders despatched within 48 hours.

INSTANT CREDIT

ASSOCIATED 1/12th LEXAN BODIES

	Clear Painted	£6.90
Ferrari 312PB, Sp.	£4.50	£6.90
Ferrari Boxer, GT	£4.50	£6.90
McLaren M20, Sp.	£4.50	£6.90
McRae, Sp.	£4.50	£6.90
Lola T600, GTP	£7.25	£9.90
Ferrari Bellancanto	£4.50	£6.90
TOJ, Sp.	£7.25	£9.90
Jaguar GPC	£7.25	£9.90
Porsche 30KL, Sp.	£4.50	£6.90
Conquest, Sp.	£6.50	£8.50

PARMA

Lancia GP6, Sp.	£5.90	£7.90
84 Corvette, SI	£5.90	£7.90
Ralt, Sp.	£3.90	£5.90
Porsche 956 GPC	£6.99	£9.99
Sorbello, Sp.	£5.50	£7.90
Kroll, Sp.	£5.50	£7.90
Ligier, F1	£5.50	£7.90
B.M.W. M1	£3.90	£5.90
Ferrari Daytona	£3.90	£5.90
Lola T530, Sp.	£5.90	£7.90
Porsche 936, Sp.	£5.90	£7.90
Chevron B36, Sp.	£3.90	£5.90
Pontiac Silverbird	£3.90	£5.90
Lotus GP5	£3.90	£5.90
Ford Mirage M10, Sp.	£3.90	£5.90
March 802, Sp.	£6.99	£9.99
Porsche 908, Sp.	£3.90	£5.90

JO-MAC

Corvette	£4.99	£6.99
Lola, Sp.	£3.90	£5.90
Schkee, Sp.	£5.50	£8.90

ODDS

C.A.C. 1, Sp.	£4.99	£6.99
Chapparat, Sp.	£4.50	£6.65
Lola, Sp.	£2.90	£4.90
McLaren, Sp.	£2.90	£4.90
Mercedes, S1	£2.90	£4.90
Vauxhall Firenza	£2.90	£4.90
Mazda, S1	£2.90	£4.90
Renault Alpine LeMan	£2.90	£4.90
Lola T70, Sp.	£2.90	£4.90
Elfin, Sp.	£2.90	£4.90
Nova, Sp.	£2.90	£4.90

MRP

VDS, Sp.	£6.50	£8.95
Ford C100, GPC	£6.95	£9.70
TOJ, Sp.	£4.99	£6.99
Zakspeed Mustang	£4.50	£6.90
Busch Hogan, Sp.	£8.95	£8.95
Frissbee, Sp.	£4.99	£6.99
Prophet, Sp.	£4.99	£6.99
Renault LeMans, Sp.	£4.99	£6.99

ASSOCIATED RC12i 1/12th SCALE

4000 RC12i Basic chassis kit and running gear and includes Graphite axle differential, less all electrical components	£49.50
4012 RC12i Complete kit less body and radio gear	£62.00

RC12i ADVANCED RACE CARS

4001 RC12i/S Basic chassis kit with sprung front end, new chassis, graphite stiffener, graphite diff. and ride height adjuster	£69.00
3000 RC12E Basic chassis kit to clear	Now Only £25.00
4111 Independent front end kit	£11.25
New! 4126 Track rod kit with Dubro ball ends	£3.75
4136 Chassis for I.S. front-end	£9.00
4137 Graphite chassis stiffener	£1.50
New! 4147 Rear ride height adjuster	£2.62
4175 Radio tray	£5.25
3440 Differential (graphite axle)	£16.50
3501 Reedy 05 motor	£8.95
3511 Rear tyres "S"	pair £2.60
3619 Rear tyres "T"	pair £3.00
3658 Front tyres "SK"	pair £3.00
3662 Front tyres "K"	pair £3.37
Aluminium rear axle blocks	pair £8.95

Plus lots more spares in stock.

1/10th ELECTRIC OFF-ROAD

Kyosho Scorpion	£69.95
Kyosho Beetle	£69.95
New! Kyosho Tomahawk	£86.50
Kyosho LeMans motors, Hi-speed	£18.95
Kyosho Le Mans motors, Hi-torque	£18.95

NEW YOKOMO DOGFIGHTER

4 Wheel Drive buggy	£79.95
Yokomo/MG buggy motor	£8.95
Brushes for above	£1.95, brush springs £1.25
GRP Scorpion rear shock adaptor, allows the use of the larger, more efficient Kyosho shocks	£4.40
CB88 Kyosho shock (soft)	pair £15.75

CB89 Kyosho shock (firm)	pair £15.75
GRP Adjustable coil over for above shock, with two sets of springs (silver-light, gold-heavy)	pair £9.50

1/8th I.C. OFF-ROAD & CIRCUIT

P.B. Nova	£179.00
Nova & Picco 21 Series III Special Offer	£215.00
P.B. Alpha 84	£165.00
Alpha 84 & Picco 21 RE Special Offer	£195.00
PB Mustang	£99.50
PB Buxy 4WD with 2 diff	£199.00
Mardave Marauder	£49.50
Porsche 930 Turbo	£99.50
Kyosho Racing Baja with diff.	£197.00
S.G. Leopard 4WD with 3 diffs.	£199.00
Leopard spares, front or rear wishbones	pair £2.70
Drive Shaft	pair £8.99; Wheel axle pair £4.10
Damper pack (coil over) pair	£11.50; Wheels pair £2.95
Reinforcement collar set for drive shafts	£4.95

UFRA OFF-ROAD TYRES

Front .. pair	£5.50; Rear .. pair £6.25; 4WD .. pair £6.25
Escort body, Lexan	£9.42; ABS .. £5.60
Capri body, Lexan	£9.42; ABS .. £5.60
Corvette body, Lexan	£9.42; ABS .. £5.60

CAR ENGINES

OS21 FSR ABC	£57.00	
Picco 21 SE, 7mm carb.	£54.91	
Picco 21 SE, 9mm carb.	£55.91	
Picco 21 RE, 7mm carb.	£64.00	
Picco 21 RE, 9mm carb.	£65.00	
Picco 21 Series III RE, 9mm carb.	£70.00	
P.B. Airfilter	£2.16; Picco Airfilter	£1.69
S.G. Wet weather air filter	£3.50	
Delta fuel filter	£1.85; Sullivan crap trap	£1.48
MacGregor electric starter	£24.95	
Pilot S86 electric starter	£25.95	
Car starter rubber drive ring	69p	
Fuel bulb	£2.95; S.G. Push-on glow clip	£2.49

Send a large s.a.e. for our 1/12th, 1/10th and 1/8th Cat.

OXFORD


Schumacher


The ideal club-racer's car, featuring much of the advanced technology featured on the 'C-Car.' Once adjustment is made, the 'Clubmans' is a steady performer.

"Clubmans"

The 'C' car from Schumacher was released amid a blaze of secrecy late last year and early users lost faith quite easily. Quick to spot the areas where improvements could be made, Schumacher duly made changes and the 'C-Car' is now to be seen in increasing numbers around the tracks of the UK as more and more satisfied owners spread the word. However, in response to public demand, Schumacher have now released a new lower cost version called the Clubmans' which demands the use of Associated front steering blocks. These replace the wishbone set-up which appears to put off beginners due to its apparent complication. It should be noted that the chassis plate to take the Associated blocks is drilled differently to the 'C-Car' chassis component, and it is therefore only possible to upgrade the 'Clubmans' to a 'C-Car' by buying a new chassis and wishbone front suspension kit.

The budget-priced alternative for competitive 1/12th scale racing

Construction

Fairly straightforward but care should be taken with the following items:

Rear axle tube: Due to machining tolerances it is possible for the tube to 'pick-up' in the hole in the rear block. Once this happens you will feel the tube jam solid and freeing it off is nearly impossible. Make certain that the axle is a slide fit in the rear block by rubbing the rear tube down with 1200 grit wet and dry. Do not attempt to push the items together if there is any jamming or resistance when you push

the axle tube into the axle block. Once in place, fit the circlips.

Rear damper post: make sure that this item is secured solidly to the shaker plate. The M4 screw provided has a heavy countersink and when done up tight does not always clamp the post tight. If this is the case with your items, use a washer under the screw (not the post) to increase clearance.

Since the instructions are non-existent, I would suggest the following assembly sequence to allow a reasonable chance of success!!

(1) Assemble rear motor blocks and tube.

(2) Screw blocks and tube (pod) to 'T' piece.

(3) Assemble front and rear stops to 'T' piece.

(4) Assemble rear pod 'T' piece assembly to chassis and shaker plate posts.

(5) Screw damper post and body posts to shaker plate.

- (6) Screw shaker to four posts.
- (7) Places spring and lower washer on damper post and fit top plate to rear pod.
- (8) Finish damper assembly and fit whip aerial.
- (9) Screw front blocks and body posts to chassis.

Setting up

Set your rear strap O rings to the stiffest setting ($3\frac{1}{8}$ in. dia. 'O' rings) for carpet and the softest ($1 \times \frac{1}{8}$ in. dia. 'O' rings) for silicone. Once assembled, undo the two screws to the softest setting available such that the ends of the screws are flush with the top of the nylock nuts. Fit all the other components to the car and treat the tyres ready for your first run. If you find that the car oversteers left and understeers right, then tighten the right hand screw (looking from behind the car) of the rear strap $\frac{1}{8}$ of a turn. Try the car again. Keep tightening the same screw $\frac{1}{8}$ of a

whether you use the sprung *Associated* blocks, or the solid type.

Track Impression

With the rear strap adjustment facility it is possible to set this car up to go with the best (at this point I must confess that this is not a kit review, since all I did was to take my 'C' car front end off and replace it with the Clubmans chassis and front blocks (solid type). However, I did have the new three screw rear strap, so the track

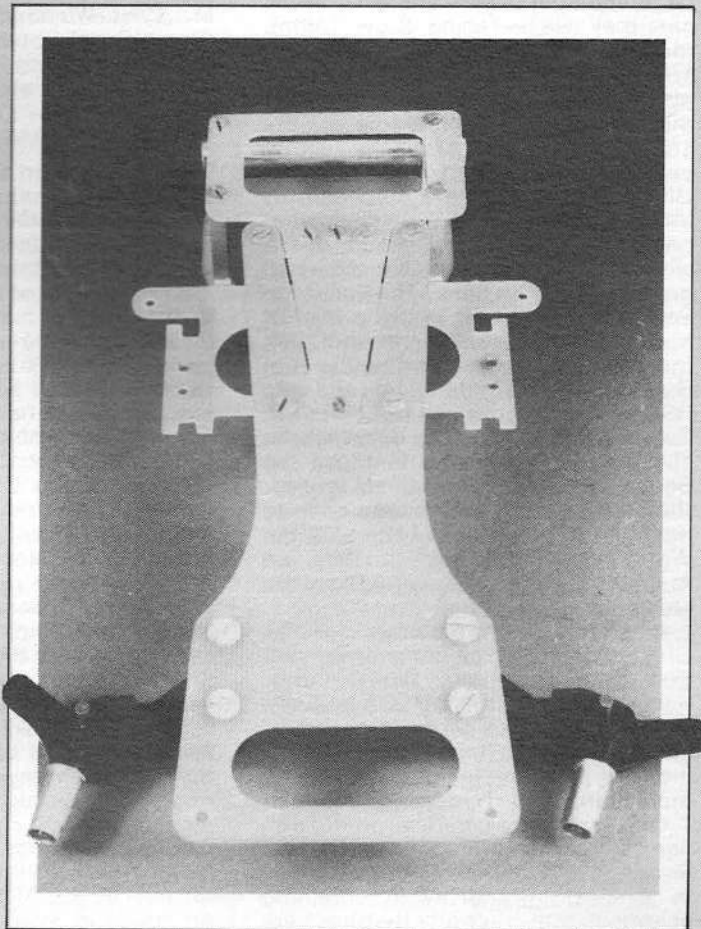
enjoyment and potential to please all abilities of driver at club level.

Conclusions

The 'Clubmans' competes with the *Associated* '12i' *Parma* 'Panther', *Demon* MF83 and of course the 'C'-Car. Pricewise it looks attractive assuming you already have some *Associated* front blocks. A conversion price table is shown below and is for basic chassis' only.

Parma Panther Conversion Kit:

Below left: the 'clubmans' features the same rear-end system as the 'C-Car' including the new rear strap system and wider GRP top-plate for easy motor removal.



*The 'Clubmans' chassis is drilled to accept *Associated* steering blocks with specific recommendations to use the sprung variety. Full 'C-Car' specification can be achieved by purchasing a new chassis and front wishbone suspension system.*

£35.00 (including front blocks and servo saver);

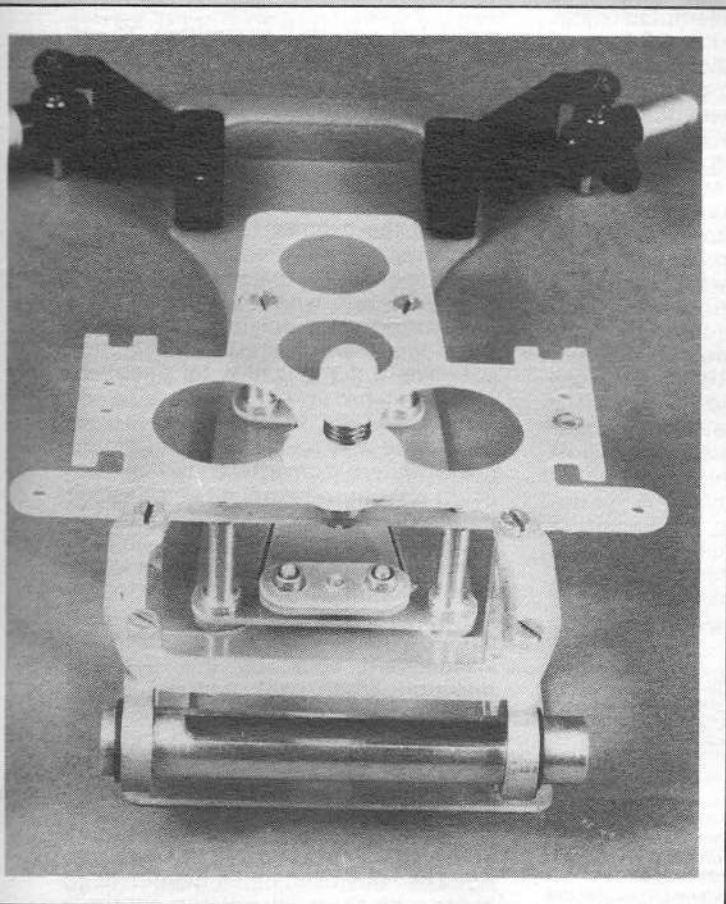
Schumacher Clubmans: £35 (no front blocks);

Associated 12i: £49.95 (including graphite rear axle);

Demon MF83: £34.50;

Schumacher 'C'-Car: £45.00 (no steering blocks).

The big plus is its track behaviour and general sturdiness of construction. The big minus is the very poor assembly instructions and that most parts have to be fitted rather than assembled. Definitely a case of enlisting a knowledgeable helper if you're not sure of your ability. Overall though a worthy contender and well worth considering if you are still running a Lexan chassis (even for silicone racing) since the rear strap adjuster can be set for silicone type softness.



turn until you get equal steering effect in each direction. If you have oversteer right and understeer left adopt the same procedure with the left hand rear strap screw. When you have equal balance decide if you now have too much oversteer or understeer. Loosen both screws equally to increase understeer, tighten equally to promote oversteer. I cannot give any steering settings since these depend on

impressions are gained with an 'as kit' set-up). I had no difficulty in maintaining my normal placings at the club with this car, and liked its track manners very much. It can be made very docile (chronic understeer) or very lively. I used *Delta* 'A' tyres all round, treated across the full width front and rear. Certainly there is not the ultimate grip or precision of the 'C' Car wishbone set-up but there is enough

The Stockcar racing world in focus

AT THIS STAGE in the 1984 season, many of the top drivers are making their plans as to which races they will be attending this year and even which cars they will be racing. Steve Talbot, the 1/12th National Champion and 1/8th British Champion, has made up his mind to miss out on the 1/12th side this year, and concentrate solely on the 1/8th. This means that for the second year running the 1/12th National Champion will not have defended his title. This throws the field wide open — perhaps it will be Dave Clarke's year? I wonder whether Steve will make a real go for all the 1/8th titles? The European Championship event is to be held at his home track, Leicester on April 29th; the British title, which he holds, is at Bournemouth on July 1st and the RSCA Championships at Lilford on September 16th, a track on which he always goes well. Add to those the Series Championship over six rounds, the Champion of Champions at Keighley on October 14th and the World Championships in Italy on August 5 and you really would have the stock car 'grand slam!'

Another driver in the news is RSCA Chairman and, at the moment, current European Champion, Paul Dudley. Paul is so busy with his RSCA commitments, Puma stock car building, house redecorating and beach buggy building, that he doubts if he will be doing more than five or six meetings this year.

Once again the *Lectricar* production line has run into difficulties, and moved its base of operations, which could lead to a short term delay in obtaining spares. It is a great pity that this very

competitive car and only challenger to the *Mardave* in the 1/12th world should have had this string of moves over the past couple of years; kits have moved out of the model shops and almost out of people's minds. It has always been a very competitive car at a reasonable price, let's hope that as the 1/12th interest grows someone will get hold of the *Lectricar* and put it firmly back on the market.

Having just written the above, a phone call has just informed me that Mr. Tyler, *Windmill Models*, St. James Street, Burnley, now has the *Lectricar* concern, so there is light at the end of the tunnel after all.

The RSCA

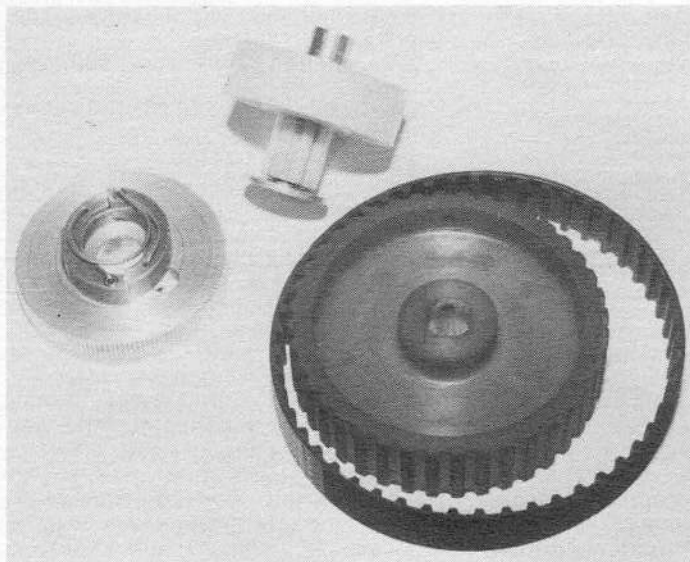
Much has been said about the Radio Stock Car Association, mostly criticism concerning a decision either it, or its committee has made. Already, people are making noises about decisions taken at the last AGM and so to all those who may be tempted to join in let's look at the facts. The RSCA is an 'association,' its members are those who race either 1/12th or 1/8th scale stockcars and have paid their £3.00 annual membership fee. In other words 600 plus people. Those members are the Radio Stock Car Association. The Association Committee are those members who are prepared to stand for the posts, and are then elected at the AGM. It is these people I feel for most whenever I hear criticisms of the RSCA, as they are members who race cars, or most of them do, have shown an interest in the RSCA and are possibly connected with club organisation back home. They are then prepared to take on a job on behalf of the Association, having been proposed, seconded and voted in by the membership to act on its behalf. If members are not satisfied with the committee then the remedy is simple, turn up at the AGM, get someone to propose and second you and see if you



get voted onto the committee. Those who were at last year's AGM will remember the difficulty there was in finding a treasurer — no-one wanted to take the job on!

As far as criticisms of the Association's decisions are concerned members should realise that they put forward the proposals, and they vote on them, the decisions therefore are theirs based on a majority decision of these members who can bother to post their voting slips back to headquarters. The postal voting has come in for much criticism in that it is easy for people to vote from home without thinking. At least it enables all members to vote even if the weather or other difficulties prevent them from attending the AGM itself, although it must be emphasised that all members should be encouraged to attend. The RSCA has just completed a poll of its members to see if postal voting should be continued, the results of which should be known soon.

However, back to the decision making. When will people accept decisions that are made as a result of the votes of the majority of the members? Every year we have someone complaining because their idea was not accepted. The moment you become a member of any association you agree to abide by its rules, if you don't like them you either get out, or go along with them till you can get them altered. It always seems to be the engine rules that people grumble about. Once it was, "ban the *super Tigre* because it costs more than the *Veco* and we are a cost conscious sport," now the *Veco* costs more than the *Tigre* so the situation is reversed. All the engines allowed under the RSCA's present ruling can be bought for £40-£45, the main criteria is, can you use the power given by your engine, and get it down onto the track.



Left: new Stockcar products from Kingsway Kar Komponenten. The clutch bell and drive gear have all been widened to accept the wider drive belt. This new system will hopefully eliminate the belt breakage problem as the load will be spread over a wider area.



Above: a former 'Photo-Action' winner which we thought deserved further exposure. Tom Moore from the Coventry Club took the picture.

One rule that does need looking at and one which no-one seems to make a lot of fuss about is the maximum kit price. In all honesty the present limit of £45 is too low, it should be put up by at least £10. Why? Well the limit has been the same now for at least three years, during which time the cost of materials has risen sharply. It is extremely difficult to put a kit onto the market via model shops, under the price limit, which is of good quality and also makes a profit for the manufacturers. In fact I know of two people who would be prepared to produce stockcar kits but have worked out that they would be out of pocket if they tried to do so with the present limit. One has to remember that the model shop owner wants to make a living as does the manufacturer. Some may argue that there is no need to sell kits via model shops but in all honesty this is the one place that the sport gets its publicity, people walk into shops and are attracted by what they see. Others argue that *Mardave* seems to manage, so why can't others. There is always an air of mystery over what goes on at *Mardave*, it is said by some that Wes Rayner has *elves* busy at work, as no-one can really understand how *Mardave* make their cars as cheaply as they do. However, one has only to look at the *Mardave* in the hands of the expert to see that either extra work has been done or bits have been changed for better quality parts from various manufacturers of stock car 'goodies.' Fortunately, the *Mardave* is cheap, as these parts have to be added to the cost of the kit car and the cost of the original deducted, the total still adding up to less than £45. (Wonder how many cars break this rule!). If the price limit was increased maybe the *Mardave* would not need these extras.

It would seem that tyres too are to be included in this price limit, with £1 per tyre being taken by the RSCA as the figure for costing purposes. So if you use tyres that are above this figure they have to be added to the price. Interesting to note though that silencers, filters and engine mounting plates do not feature anywhere, so you can fit the most expensive silencer you can find or elaborate engine mounting possible for whatever cost.

The time and place for any rule changing is of course the 1984 AGM. In the meantime it is nice to see that the RSCA have tried to clarify these points in the January/February issue of 'Nerfers News,' the bi-monthly newsletter sent to all Association members.

1/12th Scene

Joan Weston the PRO of the Pendle and District Stockcar Club wrote to say that their Club Championship, the final round of which was held on December 18th, has been won for the second successive year by 16 year old Kelvin Hawkes with Shaun Riley in second place. Right until the final round both drivers had equal points but in the decisive final Shaun's car broke down halfway through. Third place was taken by Adam Longrigg.

I have had my usual correspondence from Chris Loughran, the 1/12th scale section secretary, who hopes to furnish me with not only meeting reports but also articles on the cars for the 1984 season. The big news from Chris this month is that a big 'Art and Craft Fair' is being staged at the High School, Bingham, Nottingham on September 15th and 16th where all aspects of modelling and model engineering will be on show to the general public. The

the TV companies have also been approached. More information will be available from Chris later, but please make a note of the date now. Should also be a good day out for spectators.

Anyone interested in any aspect of 1/12th scale racing please contact Chris Loughran at 35 Glenhills Boulevard, Eyres Monsell, Leicester (0533) 777529.

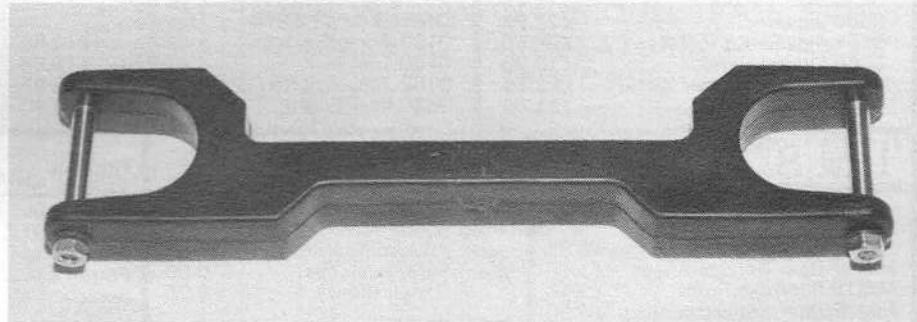
Club in Focus. Pendle and District Model Car Club

One of our most northerly clubs in the UK is the one at Pendle in Lancashire which was formed on November 21st 1979 (yes they can be as precise as that)! At that meeting a committee was elected and the promotion of the club soon put underway. Among the founder members were the Chairman, Mike Smith and his wife Wendy as Secretary, Treasurer was Bob McGlynn whilst others on the committee were Dave Birtleson, Susan and John Holden with the addition of Richard Cranston during the first racing season.

At the end of the first season in 1980 the club had attracted 60 members with Ian Cranston being nominated driver of the year and their leading lady was Wendy Smith who took the Ladies' Trophy. In the 1981 season the membership increased to 88 although the committee personnel remained the same, with the addition of Dave Barrett.

Once again the Driver of the Year was Ian Cranston, and S. Riley became the holder of the Ladies' Trophy.

In 1982 the club hosted their most important event to date, the RSCA Championships on September 19th at Langroyd Hall, Colne. A highly successful meeting which provided a



Above: the Kingsway Kar Komponenten front axle beam manufactured from high strength, injection moulded plastic. (Don't leave it near the dog bowl though!).

1/12th stockcar section have been asked to put on a demonstration race meetings for both days. The Saturday event is for 50 drivers maximum on a first come first served basis with an entry fee of £1, whilst the Sunday is for invited drivers only and will be free. Free passes will be issued to all drivers and of course the invited drivers can race on the Saturday. This would appear to be a good way to publicise the sport which will be covered by local press and radio and I understand that

great deal of hard work for the club, especially the committee members who added A. Griffin and M. Anderson to their number. Rather sadly the efforts of the club did not attract the numbers of visiting drivers they had hoped for.

Last year the membership fell to 68, possibly due to the difficulties faced in acquiring a permanent site for their portable track after their previous venue *Associated Tyre Service* at Nelson was lost due to the company's

Taking Stock

expansion. Although an alternative venue was found, for which the club was very grateful, the surface proved to be unsuitable for racing, and very expensive on tyres. Recently a new venue has been found at *Aire Valley Accenting*, Skipton Road, Trowden near Colne, which has an excellent racing surface. Thanks to the co-operation of the management, for which the club, needless to say, are most grateful. The 1983 Driver of the Year was Alan Griffin, and the Novice Trophy was won by Ken Earle. Ladies were in short supply (on the track that is) with the result that the Ladies' Trophy was not raced for.

So to 1984 with a number of committee changes and the formation of a 1/12th section. The club are hoping for a good season, they are willing and prepared to do all they can to make all drivers feel at home, so if you are in the area contact either Sandra Nicholson at 15 Gordon Street, Colne, (Colne 861255) for 1/8th scale, or Syd Hawkes, 208 Todmorden Road, Burnley for 1/12th. Incidentally, the 1/12th venue is at St. Mary's Church Hall, Nelson.

Bits and pieces

In an earlier issue I mentioned that *Kingsway Kar Komponenten* were developing a wider drive belt for 1/8th

scale stockcars in an attempt to reduce belt breakages, this also requires modifications to either clutch drum or flywheel. These parts are now in full production and the complete unit retails at £8.10, this is inclusive of belt, narrow alloy flywheel, clutch shoes and springs, clutch drum crankshaft adaptor complete with end plate and countersunk screw. The standard drum lining is *Ferodo*, but they can be supplied with either cork or steel lining to special order. For those not wishing to purchase the complete unit all parts are available separately:

Narrow alloy flywheel £1.90.
Clutch shoes 60p per pair.
Clutch springs 20p per pair.
Clutch drum £2.60.
Crank adaptor end plate and C/S screws £1.00.
100XL 050 Belt £1.80.

If customers wish, their existing flywheels can be modified at a charge of 75p inclusive of p&p. Of course the wide 40 tooth rear drive pulley needs to be used in conjunction with the wide belt.

The complete unit is a well finished product which I hope to put into practical application this season, though it does look as if it will be a tight fit on my *Super Tigre* engine in the *Mardave* chassis — still we shall see. All

enquiries to *Kingsway Kar Komponenten*, 203 Kingsway, Leicester LE3 2PP. (0533 895361), from where a wide range of other 'goodies' can be obtained.

Another source of 'goodies' is Ken Earle, 22 Gordon Street, Colne Lancs. (0282 861443) from whom alloy front axle beams and rear drive pulleys can be obtained.

I have also just heard from *Mardave* that they are now producing twin pipe silencers for both the *Irvine* and *Super Tigre* engines to add to the one they have been producing for the *Veco*. Also they have brought out the modified clutch drum to take *their* version of the wide drive belt, which I am told is 20 per cent wider than the standard but not as wide as the *Kingsway* unit. At the time of writing I have not been informed of the price of these products, but would advise anyone interested to contact *Mardave R/C Racing*, 7 Heanor Street, Sanvey Gate, Leicester (0533-4 24701).

Driver Profile. Derek Bird. RSCA No. 77

If one wanted to emphasise that this sport is one for *all* the family and is not limited to the 'young' but is open to the 'young' at heart, then you would not have to look further than the subject for this month's driver profile.

Morley Models

10/12 MORLEY BOTTOMS, MORLEY LS27 9DQ.
Telephone Graham (0532) 522691
Closed 12.30 p.m. until 1 p.m. for lunch.

CASH ON DELIVERY
SERVICE
AVAILABLE

Three Towers Models

58 HALEY HILL, HALIFAX, W. YORKS.
Telephone Ken on (0422) 44403
MAIL ORDER IS SAME DAY DESPATCH.

MINICRAFT

0410 Sawtable	£32.95
0430 Disc Sander	£19.95
0550 Jigsaw	£22.95
0551 Jigsaw Kit	£26.50
0560 Orbital Sander	£19.95
0561 Orbital Sander Kit	£22.95
0540 Drill Stand	£21.75

0230 Transformer (Standard)	£12.25
0730 Transformer (Variable Speed)	£23.95
0810 Router Attachment	£7.95
0850 Lathe Attachment	£25.95

DRILLS AND SETS	
0120 Prinz Drill	£12.50
0160 Topi Drill	£16.50
0162 Topi Drill Kit	£22.95
0510 Impala Drill	£18.50

DRILLS AND SETS	
0512 Impala Drill Set	£24.95
0514 Impala Engraving Set	£27.95
0515 Impala Box Set	£47.95
0520 Buffalo Drill	£25.95
0522 Buffalo Drill Set	£31.95
0523 Buffalo Car Kit	£34.95
0525 Buffalo Box Set	£57.95
0526 Buffalo Engraving Set	£57.95
0527 Buffalo Home Workshop	£83.95

TMS

KYDEX BUMPERS

MM16 Front Bumper for Rough Rider etc.	£2.95
MM17 Rear Holiday Buggy	£1.35
MM18 Scorpion Front	£3.45
MM25 Rear Superchamp	£3.30
MM41 Front Subaru/Frog	£2.95
MM41a Rear Subaru/Frog	£3.95
MM42 Front Mardave Marauder	£2.95
MM43 Front Mardave Apache	£3.45
MM7 Tamiya Bearings	£1.49 ea.
MM22 Scorpion Bearings (lge.)	£1.95 ea.
MM23 Scorpion Bearings (small)	£1.90 ea.
MM26 Yellow Sticks 7.2v	£16.95

CLEAR BODIES 1/10 SCALE

TMS50 Holiday Buggy	£5.95
TMS51 Hark Mears	£5.95
Lexan Range Rover	£10.90
Lexan Apache (Mardave)	£5.50
Lexan Sand Scorcher	£10.90
Lexan Rough Rider	£9.95

Granada	£11.95
XR3 Escort	£11.95
Lola T310	£11.95
Porsche 917	£11.95
Ferrari 312T	£9.95
Ferrari 512	£9.95
Porsche Saloon	£9.95

Precision Tool Sets £4.50

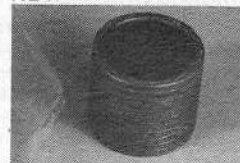
18 Piece includes:
5 screw drivers
3 Allen Keys
5 Spares
5 Socket Spanners
1 Handle

Subaru Brat	£60.00	£54.00
Frog (Tamiya)	£80.00	£71.95
Tomahawk	£99.00	£91.95
Scorpion	£79.95	£71.95
Hirobo 4 x 4	£98.00	£91.95
Lancia Rally	£60.00	£54.00
Ford Ranger	£89.95	£59.95

1/8 SCALE BUGGIES

<i>R.R.P. Discount Price</i>	
Serpent Cobra	£212.00
PB Nova	£179.00
Kyosho Land Jump	£199.00
Mardave Marauder	£49.00

* NEW *

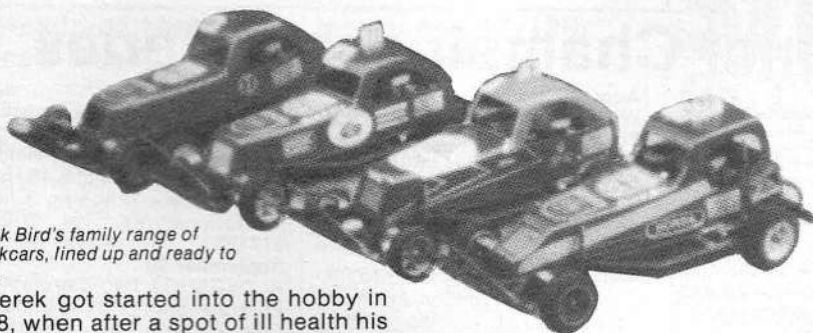


Heatsinks for Motors Anodised in Red and Blue 540 Size £4.50 380 Size £3.45

SEND 60p IN STAMPS
FOR OUR CATALOGUE

TRADE ENQUIRIES WELCOME
Tel: (0532) 523023

TRADE MODEL SUPPLIES
40 BANK STREET
LEEDS LS27 9JB



Derek Bird's family range of Stockcars, lined up and ready to race.

Derek got started into the hobby in 1978, when after a spot of ill health his wife took him into a local model shop to see some stock cars. A kit was purchased and assembled, although he had to wait until the Monday to go back and buy the engine and radio gear. His RSCA number, 77 is a family lucky number which he has retained from the start of his racing career.

When he found his driving had improved sufficiently Derek had the urge to travel, first the tracks in this country, and then abroad, especially Holland. He particularly remembers the words of Bob Clayfield, "You've not lived till you have raced in Holland."

Although Derek has a scratchbuilt 1/12th electric stockcar he has rather neglected this for the past 12 months, concentrating on the 1/8th side with a near standard *Mardave*, *Futaba* radio

gear and *Enya* 19X or 21CX depending upon track size. Rear tyres are 2402's with either *Mardave* or *Raydio* hards on the front.

For a number of years Derek has been one of the leading figures in the affairs of the Coventry Model Car Club and had a lot to do with their move to their present permanent track at Ryton in his capacity as Secretary. For the last four years he has sported a super star rating at the Coventry Club, but still cannot catch 'uncle' Cliff Emms (who can?). Derek lists as his best results a seventh place in the Coventry World Final and an equal second at a club meeting at Rosmalen in Holland.

Derek likes the hobby because of the friends he has made over the years,

both at the local club and on his travels, of whom he says, are good sports and offer you help when you need it most. His main dislike centres around those who don't mind spending money just because they think by doing so they will automatically do better than those without the cash back-up. Particularly as stock car racing is supposed to be a limited cost sport.

Derek is one of those drivers who consistently does well, both in Club and Open meetings, without ever taking a major win. I would like to see him achieve some success in this respect as a reward for his efforts to his club and the sport in general. I look forward to seeing this quiet spoken 'grandad' ovalling around in 1984.

Racing round and about

The 1/12th Nationals will be the main target for the electric minded drivers at Pendle on May 20th, and the Wirral National at Wallasey on June 17th.

For those with IC power the major meetings are at Brighton for the Festival International on May 6th, when the Aquarium Roof is one again the venue. The Sandown Symposium takes place over the two days of May 12th and 13th, whilst Keighley hosts the Series Championship Round Two on the 13th.

A & E Models

OFF ROAD

1/8th SCALE I.C.	
New! Ghepard 4WD	£235.00
Leopard 4WD	£199.95
Buxy 4WD	£178.00
Mardave 2WD	£49.50

1/10th SCALE ELECTRIC

Apache	£48.00
Rough Rider	£71.99
Holiday Buggy	£39.99
AYK Super Trial	£80.00

BODYSHELLS LEXAN 1/8th SCALE

Escort XR3	£9.80
Escort XR3i	£9.80
Lola SG	£8.95
T.O.J.	£8.95
Aerofoils	
Sports and G.T.	£2.20
Escort Mk. 1	£9.42
Corvette Stingray	£8.95
Orsella F1	£8.95
Williams F1	£9.42

ALL PRICES POSTAGE FREE
PLUS SPARES TOO NUMEROUS TO MENTION HERE.
PLEASE SEND S.A.E. FOR REPLIES TO ENQUIRIES.

BARCLAYCARD & ACCESS - PHONED ORDERS ACCEPTED.

Malvern Models

Specialists in Radio Control Model Aircraft,
Boats and Cars

19, The Hopmarket,
Worcester.
Tel: (0905) 29318

41, Albert Park Road,
Malvern, Worcestershire.
Tel: (06845) 68984

TAMIYA BUGGIES

NEW! THE FROG	£66.95
OPEL ASCONA	£66.95
LANCIA	£51.95
FORD RANGER	£59.95

KYOSHO BUGGIES

SCORPION	£60.95
BETLE	£60.95

All other buggies and spares carried in stock so give us a ring and find out our unbelievable prices.

Mail Order our pleasure - with same day service.

ACCESS

BARCLAYCARD

RADIO

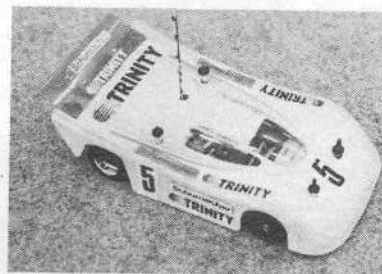
FUTABA FPTMR (SERVO REVERSING)	£35.95
SANYO 7.2V STICK CELLS	£16.00

Schumacher

PACE SETTERS IN ELECTRIC CAR RACING

ANDY DOBSON WINS DANISH INTERNATIONAL WITH UNIQUE TEAM SCHUMACHER 'C' CAR FEATURING "TRINITY" MOTORS!

SCHUMACHER



SCHUMACHER

"FOR RACERS WHO HAVE A CHOICE!" WE STOCK THE FULL RANGE OF TRINITY PRODUCTS WHICH COMBINED WITH OUR TECHNOLOGY MAKE US A WINNING TEAM . . . SCHUMACHER/TRINITY.

SEND S.A.E. FOR LATEST CATALOGUE.

RUDGE, Church Brampton, Northampton, England.
Tel: (0604) 842320

Contest Calendar

BRCA 1/8th National Championship Series

May 6

TIBSHELF Three-day meeting. Saloon; Formula; Sports/GT at Parish Sports Ground Circuit, Newton Road, Tibshelf, Derbyshire. Contact Joan Heffer, 24 Back Lane, Tibshelf, Derbyshire DE5 5LN. Tel. (0773) 872805 after 4.30pm.

May 13

BOURNEMOUTH Two-day meeting. Formula; Sports/GT at Turbary Park Circuit, Bournemouth. Contact John Dales, 158 Beamish Road, Canford Heath, Poole, Dorset BH17 7SJ. Tel. (02477) 77163.

May 27

ABERDEEN Three-day meeting. Saloon; Formula; Sports/GT at Mineralwell Park Circuit, Stonehaven, Nr. Aberdeen. Contact I. Cowieson, 26 Newburgh Road, Aberdeen, Scotland.

June 10

LILFORD Two-day meeting. Formula; Sports/GT at Lilford Park Circuit, Northants. Contact Steve Taylor, Blackhorse Lane, Swavsey, Cambridge. Tel: (0954) 31323.

July 15

WOMBWELL Two-day meeting. Formula; Sports/GT at Wombwell Sporting Association Circuit, 7 Park Street, Wombwell, Yorkshire. Contact Phil Hague, 'Field View,' 103 Upper Hoyland Road, Hoyland, Barnsley. Tel. (0226) 745592.

July 22

LONDON Two day meeting. Formula; Sports/GT at Crystal Palace National Recreation Centre Circuit. Contact Steve Fagg, 75 Chislehurst Road, Orpington, Kent BR6 0DQ. Tel. (0689) 77464.

August 12

WREXHAM Two-day meeting. Formula; Sports/GT at Hoseley Circuit. Contact Jonathan Davies, 20 Windermere Road, Little Acton, Wrexham LL12 8AN. Tel. (0978) 364854.

August 26

BRCA NATIONALS — MENDIP. Three-classes, Saloon; Formula; Sports/GT at Mendip MMRC Circuit, Nr. Weston-Super-Mare. Contact Dennis Jones, 76 Fosse Road, Newport Gwent. Tel. (0633) 278696.

September 2

WEST BURTON Two-day meeting. Formula; Sports/GT at West Burton Power Station Circuit, Nr. Retford, Notts. Contact Keith Davies, 37 Grove Coach Road, Retford, Notts. Tel. (0777) 703527.

September 16

YORKSHIRE Two-day meeting. Formula; Sports/GT at North Bridge Leisure Centre, Halifax. Contact Bryan Denton, 15 Highmoor Lane, Scholers, Cleckheaton, Yorks. Tel. (0274) 877177.

September 30

ALDERSHOT Two-day meeting. Formula; Sports/GT at Badshott Lea Circuit, Nr. Aldershot. Contact Jeff Stokes, 76 Sandhills, Farnborough, Hants. GU14 8ER. Tel. (0252) 46980.

Entries for these meetings are dealt with on a first come - first served basis. Entrants wishing for confirmation of your entry should include a stamped addressed envelope.

BRCA 1/12th National Championships series

May 19/20

CHESTERFIELD Standard and Modified class meeting at Sharley Park Leisure Centre, Claycross, Chesterfield. Contact Sheila Goodyear, 40 Twickenham Crescent, Halfway, Sheffield S19 5HS. Tel. (0742) 483112.

June 9/10

HULL Modified and Standard Class meeting at Haltemprice Sports Centre, Hull. Contact Pete Wragg, 8 Finningley Garth, Bransholme, Hull GU17 4LH. Tel. (0482) 831221.

June 23/24

EAST MIDLANDS. Standard and Modified class meeting at Enderby Leisure Centre, Enderby, Leicestershire. Contact Phil Tatham. Tel: (0530) 412949.

July 28/29

EDINBURGH. Standard and Modified class meeting at Bo'ness Recreation Centre, Bo'ness. Contact Gordon Price, 36 Main Street, Kirkilston, West Lothian, Scotland.

September 8/9

DERBY. Standard and Modified class at Rolls Royce Sports Centre, Derby. Entry closing date 8/8/84. Contact Dave Towell (0332) 771805.

September 29/30

LEICESTER. Standard and Modified class at Loughborough Leisure Centre, Leicestershire. Contact Alan Blakeman, 11 Newark Street, Leicester LE2 5SS. Tel. (0533) 898528.

October 13/14

CLEVELAND. Standard and Modified class at Thornaby Pavilion, Thornaby, Stockton on Tees. Contact Tony Wells, 10 Fawcett Avenue, Stainton, Middlesbrough, Cleveland. Tel. (0642) 591239.

October 27/28

RUNCORN. Standard and Modified class at Brookvale Leisure Centre, Runcorn. Contact Paul Hatton, 12 Southdale, Penketh, Warrington, Cheshire WA5 2AD. Tel: (092572) 5883.

BRCA 1/10th Off-Road Championship Series

May 6/7/8

PRIMROSE VALLEY Standard and Modified class at Primrose Valley Holiday Camp, Filey, Yorks. Contact Race Entry SAE to Model Cars, PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

May 20

BRADFORD standard class at Littlemoor Park, Queensbury. Contact Tony Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, Yorks.

May 26/27

EUROPEAN INTERNATIONAL OPEN Royal Agricultural Showground, Stoneleigh, Warwickshire. Contact SAE to 'Model Cars,' PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

June 3

SOUTHEND Standard class. Venue TBA. Contact John Newton, 4 Aylesbere, Thorpe Bay, Southend on Sea, Essex.

June 10

MILTON KEYNES standard class at Elfield Park, Milton Keynes. Contact Dave Meadows, 63 Aylesbury St., Fenney Stratford, Bletchley, Milton Keynes.

June 24

CHINGFORD Standard and Modified class. Venue TBA. Contact Dave Kendall, 16 Springfield Road, Chingford, London E4.

July 7/8

EDEN PARK OVERLANDERS two day meeting standard and modified class at London Transport Sports Gala. Contact Jim Paffett, 2 Hawksbrook Lane, off South Eden Park Road, Beckenham, Kent.

July 22

HARE AND HOUNDS standard class at Hare and Hounds, Batley, Yorks. Contact Tim Fountain, Hare and Hounds, 7 Batley Road, West Ardesley, Nr. Wakefield, Yorks.

August 5

LIVERPOOL Modified class at the Punch Bowl Hotel, Sefton, Merseyside. Contact Steve Newey, 15 Patricia Grove, Bootle, Merseyside.

August 19

SOUTHAMPTON. Modified class. Contact Tim Reynolds, 23 Baddesley Close, North Baddesley, Southampton. (0705) 739734.

August 26

MILTON KEYNES Modified class. Details as above.

September 8/9

LILFORD Modified and Standard class at Lilford Park, Nr. Oundle, Northants. Contact Steve Taylor, 30 Blackhorse Lane, Swavsey, Cambridge.

September 16

SCARBOROUGH: Modified class at McCain International Sports Site. Contact D. Webb, 60 Newlands Park Grove, Newlands Park, Scarborough, N. Yorkshire. YO12 6PT.

September 23

BRADFORD Modified class. Details as above.

September 30

BASILDON. Standard class. Contact: Jim Stone, 121A Collier Row Road, Romford, Essex, RM5 2AT. (0708) 64319.

All drivers are welcome to enter these events and BRCA membership is not necessary although only BRCA members can score points towards the Championship title. The only exception to this is the European International Meeting for which only BRCA members can enter.

International 1/8th Scale Meetings

May 20 Swiss GP Brugg
June 3 Dutch GP, Heemstede
June 17 French GP, Paris
July 1 British GP, Southampton
August 5 European Championships, Brugg
August 26 Italian GP, Sicily
September 9 Belgium GP, Rumst
October 7 Monaco GP
October 21 Portugal GP

1/8th Scale Invitation

June 10 Mendip
June 17 Tibshelf
July 29 Ballymena, N. Ireland
August 15 Bournemouth
September 9 Southampton
September 23 Heemstede 3 hour
October 14 Mendip 4 hour

East Midlands PB League

May 20 Lilford Saloon
June 3 Wombwell Sports/GT
June 24 West Saloon
July 8 Burton Saloon
August 15 Boston Saloon
September 9 Wombwell Saloon
September 22/23 Tibshelf Sport/GT
September 22/23 W. Burton Presentation

All drivers are welcome to race at these meetings but the aim of the series is to encourage lower handicap drivers. Works sponsored drivers cannot score points.

International 1/12th Scale Meetings

May 4/6 European Championships, Germany
August 9/18 World Championships, Denmark

Vauxhall Motors League

12/5/84 Standard
2/6/84 Modified
7/7/84 Standard
4 & 5/8/84 Two day meetings
15/9/84 Modified
20/10/84 Standard
 Entry £3.00 12 noon start. Venue Vauxhall Motors Recreation Club, Vauxhall Motors, Luton. Contact Keith Helmke (0582) 864420.

Ally Pally Carpet League

May 26
June 16
July 21
September 1
October 6
November 17
December 8
 Entry £3.00. 3 heats. A to F finals. 4.00pm at Watford Leisure Centre, Horseshoe Lane, Watford, Herts. Contact Nick Adams 01 866 5945.

Stafford Carpet League

May 27
June 17
September 16
October 7
November 4
December 16
 Entry £3.50, venue GEC Stychfields Social Club, Stafford. Contact John Robson, 0785 662242. Motors will be issued by the organisers for use during the meeting.

BRCA 1/8th Off-Road Championship Series

May 20 BRADFORD 1/8 Restricted.. 1/8 Unrestricted Entries to A. Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, Yorks.

May 28 STONELEIGH 1/8 Restricted.. 1/8 Unrestricted Entries SAE to 'Model Cars' Buggy Bonanza, MAP, PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS. Entry fee £3.00.

June 10 REMOTE WORLD 1/8 Restricted.. 1/8 Unrestricted Entries SAE to R. Cloke, Gatehampton Farm, Goring on Thames, Reading, Berks. Entry fee £3.00.

July 15 SOUTHAMPTON 1/8 Restricted.. 1/8 Unrestricted Entries SAE to Tim Reynolds, 23 Baddesley Close, North Baddesley, Southampton. (0705) 739734.

August 5 MENDIP 1/8 Restricted.. 1/8 Unrestricted Entries SAE to Denis Jones.

August 12 REMOTE WORLD 1/8 Restricted.. 1/8 Unrestricted Entries SAE to R. Cloke.

August 19 LILFORD PARK 1/8 Restricted.. 1/8 Unrestricted Entries SAE to S. Taylor, 30 Blackhorse Lane, Swavest, Cambridge.

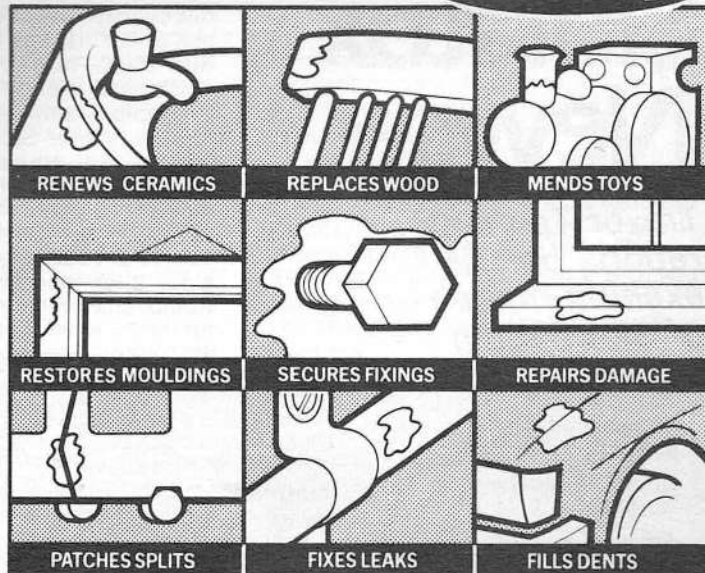
September 9 BASINGSTOKE 1/8 Restricted.. 1/8 Unrestricted Entries SAE S. Pyne.

September 16 BICESTER 1/8 Restricted.. 1/8 Unrestricted Entries SAE to Alec Hudson, Howes of Oxford, 9-10 Broad Street, Oxford. Entry fees £4.00.

September 23 BRADFORD 1/8 Restricted.. 1/8 Unrestricted Entry SAE to A. Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, Yorks.

Permanent, Strong

SETS IN MINUTES



AND MUCH, MUCH MORE

Available in two sizes from D.I.Y. and motor accessory outlets.

Repair, construct and mould in FASTGLAS



Make your own Glassfibre Reinforced Plastic (GRP) at home – the quick and easy way with FASTGLAS
 GRP is strong, permanent, weather proof, will bond to most materials and can be made to any shape or size.
 FASTGLAS kits and accessories have 1000's of D.I.Y. and hobby uses, and are available from motor accessory and D.I.Y. outlets.

david's
FASTGLAS

For free information please send S.A.E. to:

W. David and Sons Ltd., Ridgemount House, 1 Totteridge Lane, Whetstone, London N20 0EY

Midland Slotsox News

Trevor Tennant reports on this exciting branch of Slot Racing

THIS YEAR'S RACING in the Midlands area has been some of the best ever, the quality of driving and car preparation has been of a very high standard indeed. The most encouraging feature has been the excellent performances of the under 12 age group members of the club, most notably Midlands Champion Kenny DaCosta, Ladies Champion July Anderson and Ian Shaw who was Star graded for part of the season. However, the youngest racer of all who finished every points race entered for is two-year-old Stuart Tennant. His meeting average is a source of embarrassment to quite a few elder club members. The all season Points champion was Trevor Tennant for the third time in five years. In all, over 95 people raced at meetings this

season with the average attendance of 48. Three teams went to the National Team Championships at Bacup, Lancs, although attained indifferent results, due to a poor power supply and very tight chicanes. Our cars did not suit the track at all well. Next year's event is to be held at Wisbech, Cambridgeshire. I have visited and raced on this circuit and I was most impressed with with layout. The construction is a first class effort.

I feel that since the national Slotsox rules were changed the racing has degenerated greatly, simply because the new rule cars are useless for dishing out the bumper. It's no longer possible to use any legitimate aggressive tactics because if you do the silly things deslot themselves. Stockcars

List of Clubs in the UK

Area 1

Area Delegate: A. Coppola, 30 Hawthorn Bank, Carnock, Fife.

Ecurie Barnton

Secretary: As Area Delegate.
Club address: St. Cuthbert's School, Hutchinson Crossway, Edinburgh.
Clubnight: Wednesday.

Hamilton

Secretary: S. Campbell, 15 Orbiston Drive, Ballshill, Glasgow.

East Kilbride

MCC Secretary: D. Jackson, 46 Mount Cameron Drive, East Kilbride.

Club address: New Farm, Hobby Centre, Strathaven Road, Strathaven.

Clubnight: Monday.

Lambert

Secretary: 57 Beech Crescent, Larbert FK5 3EK. Tel. Lar.

Area 2

Area Delegate: S. Sargent, 79 Manchester Road, Blackpool, FF3 2DR.

Coastal Equipe

Secretary: K. Appleby, 5 Walrey Place, Blackpool FY3 7RT.
Club address: 24 General Street, Blackpool. Tel. 0253 35806.
Clubnight: Tuesday.

Fylde MRCC

Secretary: S. Sargent, as Area Delegate.

Club address: The Reading Room, Claremont Road, Blackpool.

Clubnights: Monday, Friday.

ARRA

Secretary: C. D. Fitzpatrick, 61 Larkfield Lane, Southport,

Merseyside PR9 8NN.
Club address: Pool Hey Lane, Southport, Merseyside.

Aintree MRCC

Secretary: A. Clark, 22 Kinsale Drive, Birchwood, Warrington WA3 6LX.

Club address: Kirkdale Community Centre, Kirkdale, Liverpool.

Clubnight: Monday.

Bolton SC

Secretary: G. Walker, 18 Arlington Street, Bolton BL3 2BN.

Club address: YMCA Dears gate, Bolton.

Clubnights: Wednesday, Friday.

Area 3

Area Delegate: G. Kimber, 14 Gleneagles Drive, Great Usworth, Washington, Tyne and Wear. Tel. 091 4162620.

Leeds MRCC

Secretary: J. Norton, 36 Haighside Close, Rothwell, Leeds.

Club address: Market District Boys' Club, Brussels Street, Leeds 2.

Clubnight: Thursday.

Wakefield MRCC

Secretary: I. Prout, 4 Woodhall Drive, Ackworth, Pontefract, W. Yorks. Tel. 0977 613677.

Club address: Old British Relay Building, George Street, Wakefield.

Clubnight: Monday.

South Yorks MRCC

Secretary: G. Burke, 19 Palington Grove, Cantley, Doncaster DN4 6LP. Tel. Doncaster 59965.

Middlesbrough MCC

Secretary: J. Rutter, 161 Alma Street, Hartlepool, Cleveland.

Club address: Princess Street Community Centre, Princess Street, Middlesbrough.

Clubnight: Friday.

Tyne and Wear MCC

Secretary: As Area Delegate.
Club address: Old Primitive

Methodist Church, Blue House Lane, Concord, Washington, Tyne and Wear.

Clubnight: Tuesday.

Retford MCC

Secretary: R. Prince, Dover Lodge, Elkesby, near Retford, Notts.

Club address: The Barnloft, Manor Farm, West Drayton, Retford.

Area 5

Area Delegate: D. Cooper, 12c Princes Avenue, Nuneaton, Warks. Tel. Nuneaton 383630.

3 Spires MR

Secretary: K. Packer, 41 Romford Road, Coventry, West Midlands CV6 4FS. Tel. Coventry 84982.

Club address: Cheylesmere Community Centre, Arundel Road, Coventry.

Clubnight: Monday and Friday.

Leicester MCC

Secretary: C. Loughran, 12 Markland, Eyres Monsell, Leicester.

Club address: All Souls Church Rooms, Sawday Street, Leicester.

Clubnight: Monday, also Saturday afternoon.

Birmingham SRC

Secretary: M. Perry, 38 Manor Gardens, Birmingham 33.

Club address: Harry Mitchell Recreation Centre, Coopers Lane, Smethwick, Birmingham.

Clubnight: Tuesday.

Bedworth

Secretary: T. Tennant, 2 Cardigan Road, Bedworth, Warwickshire. Tel. 0203 367180.

Parkside SCC

Secretary: T. Hayes, 6 Watling Street, Wilnecote, Tanworth, Staffs. B77 5BP.

Club address: YMCA Sutton Coldfield.

Clubnight: Wednesday.

Area 6

Area Delegate: R. F. Lees, 120 Brondesbury Park, London NW2. Tel. 01 451 0866.

North London SME

Secretary: A. Cordon, 44 Radcliffe Road, Wealdstone, Harrow, Middx. Tel. 01 427 9918.

Club address (in 1981): Downway off Summer's Lane, N. Finchley, London N12.

Clubnight: Thursday.

Church Farm Racing

Secretary: A. Young, 17 Little Dell, Welwyn Garden City. Tel. Welwyn Garden City 32723.

Club address and Clubnight: As North London SME.

The Chequered Flag

Secretary: Mr. K. Whiting, 2 Collins Drive, Eastcote, Middx. Tel. 01 427 1321.

Club address: The Youth Club, Gulliver Close, Northolt, Middx.

Clubnight: Wednesday.

Vauxhall Motors MRCC

Secretary: M. Austin, 33 Totternhoe Road, Dunstable, Bedfordshire.

Club address: Vauxhall Motors Recreation Club, Kingston Road, Luton, Beds.

Clubnight: Tuesday.

Wonderland Raceway

Address: 22-22 Eastern Esplanade, Southend on Sea, Essex SS1 2ER. Tel. 0702 65882.

Note: This club races mainly 1/24 scale.

Billericay

Secretary: J. Neill, 'Greenways,' Ramsden, Bellhouse, Bellericay, Essex CM11 1NS.

Club address: As above.
Clubnight: Tuesday.

Area 7

Area Delegate: C. Gooding, 47 Salisbury Close, The Ridgeway, Alton, Hants.

are intended to contact one another and if the Bacup affair is to be the norm then we might as well race Hot Rods, because the degree of intentional contact was non-existent.

On the technical front the main problem is the difficulty in obtaining a decent cheap motor, unfortunately we are now paying the earth for American *Mura* motors, similarly I can remember not so long ago when you could obtain a 'Group 12' motor for £4.00, the cost now is £8.50. It's the same story with *Beatties* steel gears which have nearly doubled in price in a short space of time.

Parma International have produced an interesting new motor, 16D size at a sensible price. My sample showed great promise, but have had a few problems which have since been

rectified. According to the UK importer. The new motor is wound with 31awg wire so it should be ideal not only for Slotstox but other forms of cheap racing. My own motor was tried in a *Parma* 'Womp Womp' car and the speed was impressive. The other supply problem relates to rubber tyres and I am currently working with a company to solve this dilemma. It will be ideal if the tyres can be made in a range of widths and diameters that will also satisfy the Formula One model builders. The rubber tyres presently obtainable are utterly useless in respect of traction and appearance, the reason being that most of the present motley selections were designed many years ago.

I would be interested in hearing from

anyone who has any practical experiences using a home computer for lap recording on a slot track. A program should not be complicated to design and to interface the track to the micro should not be too difficult.

The main advantage would be the ability to check through the race to determine race positions at various points which might settle disputes, but in our club that's unlikely.

I will be writing a construction article for a top line race car using the new *Parma* '16D' motor as soon as I obtain a modified motor from the UK importers, Helger Racing of 72 Lauderdale Tower, Barbican, EC2Y 8BY. Meanwhile if you have any news regarding Slotstox or any oval racing I will be pleased to hear from you.

Grope

Secretary: C. M. Frost, 22 Phillips Road, Marnhulls, Sturminster Newton, Dorset DT10 1LF. Tel. Marnhull (0258) 820770.

Club address: as above.
Clubnight: Alternate Fridays.

Hadcar

Secretary: P. Morris, 19 Chichester Walk, Wimborne, Dorset. Tel. Wimborne 888329.

Club address: Hillbourne and District Community Association, 69 Cavan Crescent, Waterloo Estate, Poole, Dorset.
Clubnight: Tuesday.

Bath MCRC

Secretary: R. Norwood, 3 Ellacombe Road, Longwell Green, Bitton. Bristol. Tel. Bitton (027588) 3613.

Club address: Percy Boys' Club, New King Street, Bath.
Clubnight: Wednesday.

Torbay MRC

Secretary: R. Perrow, 36 Audley Avenue, Torquay, Devon. Tel. Torquay (0803) 36781.

Club address:
Clubnight: Tuesday & Friday.

Dowty's MCC

Secretary: D. Coward, 106 Elmbridge Road, Gloucester.
Club address: Sir George Dowty Memorial Club House, Cheltenham.
Clubnight: Wednesday.

Tamar MRCC

Secretary: M. Aston, 2 Hallerton Close, Mainstone Farm Estate, Plymouth, Devon, PL6 8NP. Tel. Plymouth (0752) 785604.

Club address: Callington Social Club, Wells Street, Callington, Cornwall.

Netley MCC

Secretary: E. French, 29 Chaucer Road, Thornhill, Southampton. Tel. 0703 463474.

Club address: 58 Station Road, Netley Abbey, Hants.
Clubnight: Monday.

Area 8

Area Delegate: W. Robinson, 33 Waterside Close, Bordon, Hants.

Haydon MRCC

Secretary: J. S. Jensen, 10 Pennings Avenue, Rydes Hill, Guildford, Surrey GU2 6SU.

Club address: Laburnum Hall, Laburnum Close, Laburnum Road (off Grosvenor Road) Aldershot, Hants.
Clubnight: Friday.

Reading MRCC

Secretary: As Area Delegate.
Club address: Yeomanry House, Castle Hill, Reading, Berks.
Clubnight: Tuesday.

Roedale MCRC

Secretary: C. Church, 174 Hollindean Terrace, Brighton BN1 7HE.

Club address: 2 Roedale Road, Brighton.
Clubnight: Thursday.

Surbiton MRCC

Secretary: A. Hammocks, 46 Aston Road, Raynes Park, London SW20.

Club address: Surbiton Town Sports & Social Club, Worcester Park, Surrey.
Clubnight: Friday.

Crawley

Secretary: C. Newble, 14 Fisher Close, Southgate, Crawley, Sussex.

Club address: Hut 18, Tilgate Recreation Centre, Tilgate, Sussex.

Maidenhead

Secretary: S. Hole, 25 Narromine Drive, Fords Farm, Calcot, Reading, Berks.

Club address: Maidenhead Model Makers Club, Holmanleaze behind Maidenhead Sports Centre.
Clubnight: Tuesday.

Area 9

Area Delegate: D. Harvey, 52 Hawbeck Road, Wigmore, Gillingham, Kent. Tel. 0634 369004.

Medway MAC

Secretary: R. Thomas, 111 Hollywood Lane, Frindsbury, Rochester, Kent.

Club address: Rear of Kent's Cameras, 6 Hillside Road, Chatham, Kent.

Clubnight: Tuesday and Friday.

Something Completely Different (SKD)

Secretary: A. Rowland, 22 The Green, St. Leonard's on Sea, Sussex. Tel. 0424 421487.

Club address: The Barn, rear of the rectory, Short Lane, Old Town, Bexhill, East Sussex.

Timaru

Secretary: G. Sampson, 175 Westwood Road, Broadstairs, Kent G10 2NR.

Club address: Rear of Bull Inn, Eastry, Nr. Sandwich, Kent.
Clubnight: Friday.

Bromley

Secretary: T. Ryan, 52 Hayes Road, Bromley, Kent.

Club address: H. G. Wells Centre, Nr. Bromley.
Clubnight: Tuesday.

Folkestone MRCC

Secretary: A. Ferguson, 18 Athelston Road, Folkestone, Kent.

Club address:
Clubnight: Sunday morning.

Coulsdon

Secretary: B. Meagher, 229 Croydon Road, Wallington, Surrey SM6 7LR.

Club address: Rear of Midland Bank, Chipstead Valley Road, Coulsdon.

Clubnight: Thursday.

Area 10

Area Delegate: N. Harvey, 22 Jeffries Road, Ipswich, Suffolk. Tel. 0473 214267.

Heron MCRC

Secretary: C. McIntyre, 9 Ampton, Bury St. Edmonds, Suffolk.

Clubnight: Monday.

Ipswich SCC

Secretary: C. Merlo, Heather Lodge, Levington, Ipswich, Suffolk IP10 0NA. Tel. Nacton 508.

Club address: Grimwade Memorial Hall, Back Hamlet, Ipswich.

Clubnight: Wednesday.

Presto Park MMRC

Secretary: J. Rounce, 45 Alford Grove, Norwich. Tel. Norwich 408219.

Club address: Norman Community Centre, Bigrald Road, Norwich.

Clubnight: Monday.

Gorleston Greenbees SRC

Secretary: B. Dean, 6 Silver Gardens, Belton, Gt. Yarmouth.

Club address: Shrublands Youth and Adult Centre, Magdalen Way, Magdalen Estate, Gorleston.

Clubnight: Tuesday.

Isle of Man

Delegate: D. Ashton, 46 Laurel Avenue, Oncham, IOM. Tel. 0624 24860.

Manx MRCC

Secretary: G. Mitchell, 49 Silverburn, Ballasalla, IOM. Tel. 822715.

Club address: Hut behind Quarterbridge Hotel, Quarterbridge, Douglas, IOM.
Clubnight: Tuesday.

Northern Ireland

Harland and Wolff Social Club

Secretary: E. J. Foster, 33 Cotswold Avenue, Belfast BT8 4NA.

Club address: 8-10 Dundels Avenue, Belfast.

Cowans SCC

Secretary: S. Cowan, 24 Derrymore Lane, Portadown, Co. Armagh.

SG Checklist

Bob Errington details his approach to setting up the SG Columbia

THE SG 'COLUMBIA MkII' has been in Britain now for just over a year and in that time has seen very strong support from an increasing army of followers. Many of these, literally throw the kit together, and because the car seems to work well in the multitude of permutations, that is exactly how the 'kit' remains.

The time seemed right, therefore, to produce this article on the way to assemble and set up the car. Different people do have slightly different views on particular aspects of setting up, but all seem to work, although many of these ideas rely on experience to the extent that the Works Italian SG Team 'squeeze' the front or rear end of the car and alter according to the feel of it. (Something they have had experience at in other fields).

So on with the kit, but remember that

time spent in careful assembly always pays dividends.

Shock absorbers

Whatever else you do — don't sand any of the components. Everything fits and moves nicely until you try and polish the shaft so don't do it, OK? I know I've tried it.

Look carefully at the black nylon piston and you will see a small moulding flash. Cut this with a sharp modelling blade such that you bevel a little corner of the piston as well. Repeat also for the nylon plugging washer.

Clean the brass end caps with a toothbrush or similar, preferably an old one as brass swarf does not do your teeth any good, run the shaft through to check all is well. Rub the O rings gently between the end of your finger and the palm of your hand as this removes minute rubber particles, then ease the large ring onto the brass end cap and insert the small ring at the other end. Place these completed assemblies onto the shaft and they should slide nicely with a fairly gentle pressure. Remembering to add the nylon plugging washer first, screw on the piston at either end followed by the nut and washer. Use of a light duty loctite is also recommended then carefully cut off remaining thread ensuring that all swarf is removed again.

Check that the red casing is clean and the bleed screw hole is open, then

insert screw and slowly top up casing with 20W-50 motor oil to the brim and leave to stand till all the air bubbles have risen to the surface. Insert the piston carefully trying not to trap any air and gently screw in the brass plug till it goes tight, then release the bleed screw, so that oil starts to weep out and continue to tighten brass cap until it reaches the home position.

If this is a rear shock absorber I slowly push the piston into the barrel until it bottoms (more oil will weep out) and then do up the bleed screw, if it is a front shock then I only half stroke it before tightening the screw. You will notice later that the rear set up enables the mono-shock to close completely but that the front only travels around the fully open position. The reason for half stroking the front is so that if required, it can be removed through the front bulkhead.

After all shocks have been filled check them for smoothness and if by chance you trapped air within, you will feel it and should then drain and re-do that particular shock.

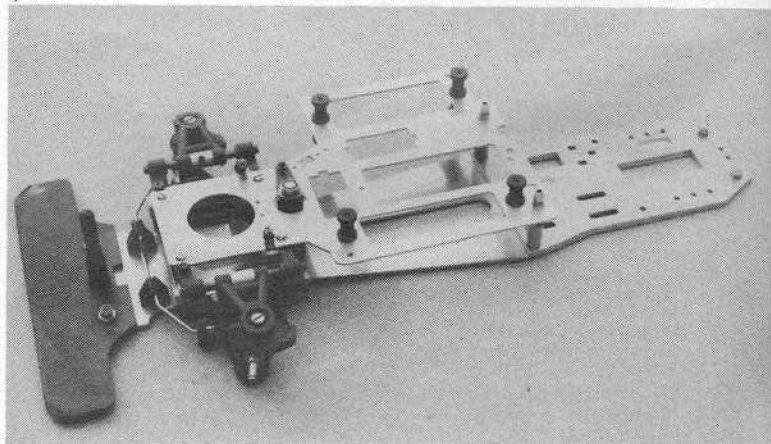
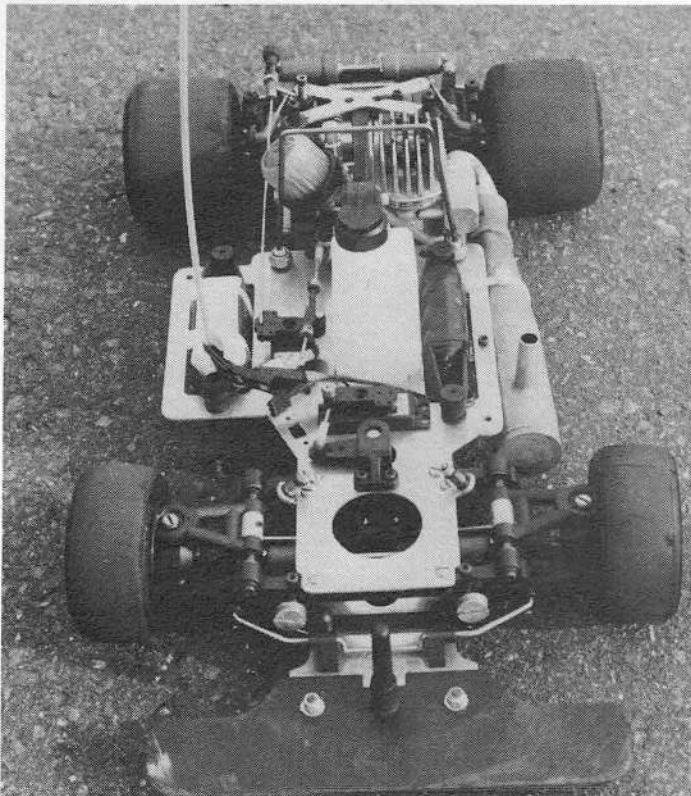
Chassis

The 'Ergal' chassis used is extremely strong and the only preparatory work required is to deburr the stamped side of both chassis and doubler thus removing any sharp edges. This is very important as blood stains can be difficult to remove, once baked one.

I personally liked to 'stick' the chassis and doubler together, with silicone, to prevent dirt and grit getting in between, when doing this don't forget to line the screw holes up. I leave this clamped together for at least 24 hours.

The rear shaker plate support posts are vital to the car's stability and so

Left: Bob's race-ready 'Columbia' sporting the latest in MRC (Moulding Research Corporation) 'Slik' tyres. Bob has done much of the testing for these items with favourable results. Below; extreme care should be exercised when fitting the radio plate to chassis.



screw them to the chassis with a strong locktite. These screws should of course be checked periodically for tightness. Finally place a large 'O' ring over each post ready for the 'shaker' plate.

Front suspension

No real problems should be encountered with this assembly save that of checking the fit of the aluminium caster adjusting stops. These should be a comfortable fit between the upper front wishbone arms and if not, should be filed until they do so (usually this is not a problem but one batch for sure was slightly oversize).

Rose joints should be cleaned periodically and lubricated with a good sticky chain lube. (*Silkolene* seems the best).

Polishing of the pivot shafts is not necessary, if the mouldings are slightly stiff which can happen after running in the rain, then gently twist a $\frac{1}{64}$ in. drill through.

Springs should be checked back to back in various positions to check symmetry and ideally should be exact on all accounts although this can be adjusted later by the eccentric can adjusters.

Incidentally, the brass collars on the front axles I find a nuisance and so stick them carefully to the axle with a two part glue called 'locktite Multi-Bond,' naturally ensuring that the ball races don't get filled with glue.

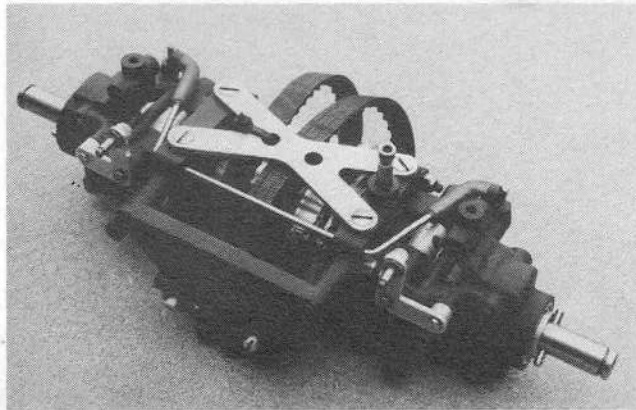
Shaker or radio plate

Before fitting the radio plate it is a good idea to mark then drill and tap, the servo retention screws. I personally like to have all leads etc. above the radio plate and so I file a large notch in each servo hole thus enabling the servo and lead to enter from above. Again debur all edges and holes. Now fit the plate to the chassis assembly by carefully centralising the rear holes over the support posts, whilst holding the assembly down on a flat surface. Carefully tighten the front screws and check that the rear is still central. Place a second 'O' ring over each post and push down then gradually tighten the 'nylock' nut until it pinches the 'O' ring. This gives the rear a sturdy mounting whilst also allowing a shock absorbing effect under heavy impact. Which of course can only happen during periods of radio interference or brain fades!

Attach the fuel tank checking that the tank screws are 'backed off' slightly to allow float. Again I prefer to insert servo grommets in the plate prior to mounting the tank.

Rear end

The differential unit usually comes complete and only requires packing with 'LM' grease or similar before assembly commences. Brakes are a question of preference in respect of the



Left: complete rear-end unit featuring twin toothed belts one for actual drive, the other for back-up if a breakage occurs. Below: detail of the differential (pre-assembled) brake cam lever and drive shafts.

amount of braking that suits an individual style. Either the carbon fibre or the 'Ergal' disc is acceptable the Ergal being the stronger brake but does wear quicker.

When inserting the brake cam, do remember to file away the trailing edge so that the brake is never applied in the reverse direction.

Grind a flat on the small upper outer pivot pin of the suspension wishbones to enable the grub screw to 'lock in.' Also, if using the standard circlip arrangement for retaining the rear wheels then hold the drive pin in place by inserting a piece of fuel tubing into the hole and pushing the pin through this as well.

Insert rubber buffers into half shafts smear with grease then insert drive shaft and check movement of suspension. Note that sometimes the rubber pads have to be sliced in half to prevent binding about the central point of suspension travel.

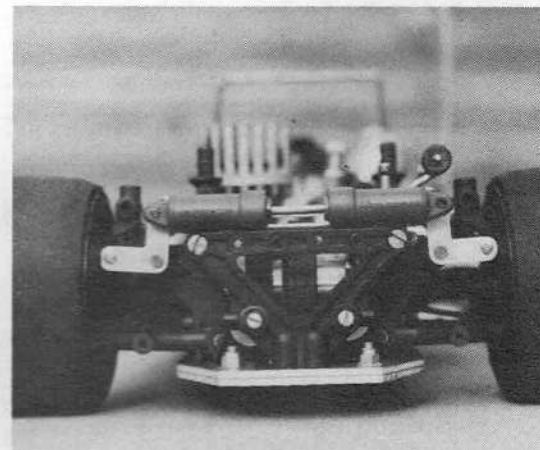
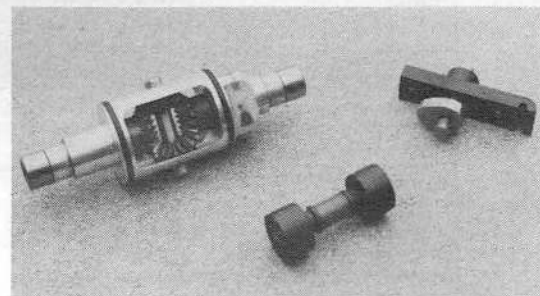
The rubber gaiters are best mounted with an 8-10mm piece of fuel tubing between them and then the outer 3mm of the boot is sliced off. This gives a nice fit with no movement of the boot on the shaft.

Rear camber adjusters should be mounted so that the slot is rear facing and thus easing adjustments and should be arranged so that the hole is at its innermost position (i.e. minimum camber).

Before tightening all the screws ease both outer assemblies forward to remove any slack then tighten. When viewed from above this should now give you a very slight degree of toe in which itself is desirable and aids the driveability of the car. Conversely, of course, toe out detracts from stability and this applies to all models so far encountered.

Layshaft

Before assembling the layshaft, drill and tap a small hole from the top into the central cavity. This will allow spray lubricant to be injected and force out any rubbish from within the bearings whilst filling the bearings with lube. Failure to do this results in both notchy bearings and more commonly, a worn



Above: the complete assembled 'Columbia' rear-end at repose with correct ride height and suspension settings. 'Columbia' drivers have a choice between dual or mono-shock layout.

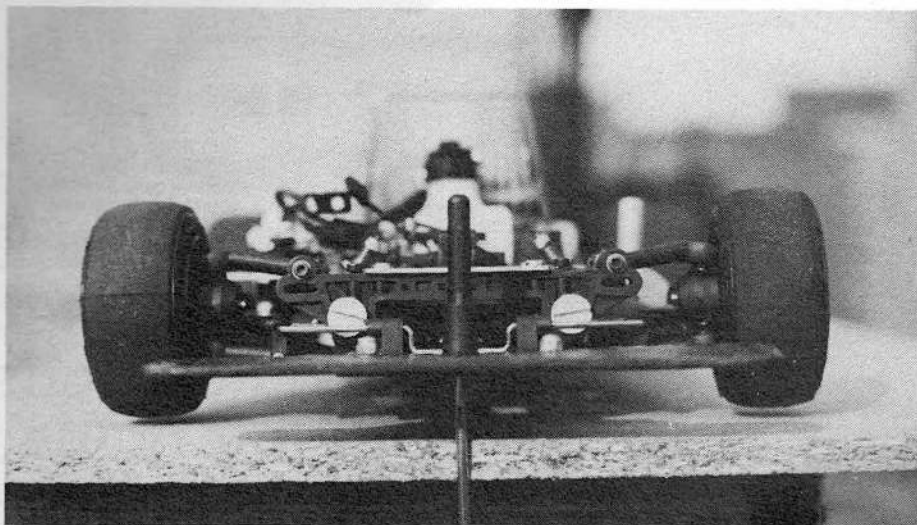
shaft at the belt end. (Fit screw bolt to prevent ingress of dirt).

Tension of the drivebelt should be fairly taut and although this can be allowed to get slack, you do run the eventual risk of jumping teeth which ultimately gives you a stripped belt.

The three point fixing is really secure and it is only necessary to tighten with a handled allen key (3mm) after of course checking the assembly to be square.

Motors/pipes/clutches

The most popular engines used on the Columbia are the Picco and the OPS both of which use the same engine blocks but do use different fly-



Above: checking for correct suspension/ride-height settings and chassis tweek can be easily accomplished by raising the chassis at a central point, spinning the wheels and lowering the car. Both wheels should touch and stop simultaneously.

wheels, layshafts, manifolds and pipes. I would therefore recommend that if you are going to have more than one engine, that you stick to one make.

With the OPS motor we use the OPS manifold and either the OPS pipe or the new SG pipe. The later is more powerful and quieter but does have the advantage/disadvantage that the outlet pipe faces upwards. This leaves the chassis clean but the body and wing filthy and also has the effect of reducing the amount of oil and hence tradition that ultimately reaches the track. You may have noticed the current trend is for upward facing pipes and this is why there is a need for new breeds of tyres. *Gandini* and *Bajoma/Houdini* are new names and are slightly different despite what anyone might tell you, each having a different reaction to different surfaces.

Setting up

The car is best set up with a new set of tyres all round sizes being front 72mm and rear 82-85mm and all the following is carried out with tyres on.

(a) Front down stops

Set front wheels roughly parallel (no track rods yet fitted) and push chassis down at front onto a flat surface. Adjust front downstop nuts until they just touch the springs on both sides. (Checking that the springs are in the home position). Now mark an appropriate flat on the nuts then wind the nuts down two or three turns each side, release chassis.

(b) Front spring adjuster

Simply adjust cams until a ground clearance of 8mm exists with both sides equal in tension. Sounds easy doesn't it! Do this whilst the rear end of the car is supported on a block and check side tensions either on a 'tweak' board or by lifting the front chassis with a screwdriver as a pivot in the centre

looking for one wheel touching the ground before the other.

You will find this very easy to achieve and does not require a lot of fiddling or precision.

(c) Rear spring adjuster

Support the front of the chassis and then set rear adjusters in a similar way with a clearance of about 12mm. This should leave the driveshaft in line and not at any angle.

Note. This is fine for 'tweak' board setting however if using the above screwdriver method you will have to check the rear by lifting the front again, with required adjustment at the rear. This is because the rear has built-in non-adjustable down stops and this must be checked with the springs in tension which providing you have not somehow managed to twist the chassis can be achieved as above.

A chassis twist is virtually unheard of and indeed if it is thought to be twisted after say repeated Kamikaze impact then the shaker plate mounting should be re-checked even perhaps to the extent of checking that the screws holding the rear posts have not been viciously bent. (Installation of servos with the aid of a 'lump' hammer is also reputed to cause slight distortions.

(d) Front Caster

This is measured between the front-most bulkhead washer and the upper wishbone and is obviously measured in millimetres being an Italian car. This is best achieved with a cheap pair of internal calipers and should be identical on both sides.

It is recommended that for a first run this should be set at 8.0mm (see 'Points to Remember' about effect caster has on handling).

(e) Track rods

Note that the track rod has a lefthand thread at one end and that this corres-

pondences to the ball link with the 'S' stamped on it. With left and right hand thread the track rod can be set to the exact length required and does not need to be in 'one turn' steps. Set both rods exactly the same so that when the car is on level ground and at normal ride height a perceptible amount of toe in is available, even when any slack is taken out of the linkages. This should be done with the outer set of holes on the stub axles and the central pair of holes on the servo saver. When this is achieved I thread lock the left hand threads and mount them to the servo saver thus any later adjustments are made on the outer ends and are normal threaded.

(f) Linkages

This subject has been covered many times and all I will say is ensure all inter connections are square and/or parallel to each other. The ultimate amount of steering lock is controlled by means of the rate switches.

Running the car

Under normal conditions a set of SG 'Gold' front tyres are ideal with a set of the previously mentioned tyres on the rear. Set the rate switch low and run, increasing the rate switch till the optimum is reached. Note that full rate is hardly ever the best set up.

Points to remember

Rear camber. The more camber the more rear grip available but the higher the tyre wear. (I normally set this to minimum and alter the front grip to suit).

Front caster

For normal racing conditions 7.5mm seems right however increasing this to 8 or 8.5mm reduces the initial amount of steering but helps with the 'power on' steering as when exiting a corner i.e. car is easier to drive. Reducing caster to 7mm increases initial response but you do need a lot of grip to prevent spinning at a corner i.e. makes the car twitchier.

(In England it would seem the best to start at 8mm reducing to 7.5mm when the grip comes up).

So that's it really, a nicely set up car that should be a pleasure to drive. If you do have any questions about the car then write to 'Model Cars' or alternatively contact one of the team at any of the British Open Meetings but preferably not just before one of our heats or finals.

This year the team comprises of Steve White, Phil Greeno, John Chamberlain and myself so there should be someone there that you feel you could ask.

So here's wishing you a happy and enjoyable season.

Good luck.

TED LONGSHAW MODEL CARS

THE U.K. P.B. DISTRIBUTOR
NOVA

**"THE MARVELLOUS MONOCOQUE"
FOR I.C. CIRCUIT RACING AND
COMING SOON**

THE NEW OFF-ROAD SENSATION
FIRST SEEN IN NUREMBURG
"GHEPARD"

COUPLED WITH THE POWERFUL PICCO 21 S/E OR R/E, RACING, OR BUGGY ENGINE, YOU HAVE A WINNER. WE ALSO DISTRIBUTE: UFRA, KIMBOROUGH, TRINITY, BAJOMA, DELTA, NOVAC, PARMA, DEMON, AND THE FULL SCHUMACHER RANGE. TRY YOUR LOCAL MODEL SHOP FIRST, BUT IF IN DIFFICULTY CONTACT OUR SAME DAY MAIL ORDER DEPARTMENT ON **0689 55313**.

"WE GLUE & TRUE ANY 1:8 OR 1:12 WHEEL & TYRE. TRAKTITE CLEANER & TRU TYRES ARE EX-STOCK.

**TED LONGSHAW, 7 WARREN ROAD,
ORPINGTON, KENT.**

C. A. JONES FILM LIBRARY — T/A

SUPERCHARGE MODELS

FOR RETURN OF POST MAIL ORDER FOR 1/12 RACERS



DEMON MFI CARPET RACER £34.50 POST FREE
ALL DEMON CAR SPARES IN STOCK.

DEMON 2 CES SPEED CONTROLLER
£38.50 POST FREE



TRACKTITE TYRE ADDITIVE £1.50 POST FREE
M.G. STD. MOTOR £7.75 POST FREE

LASER-TURBO — ELECTRONIC SPEED CONTROLLER £38.50 POST FREE
LASER-PULSE CHARGER — STANDARD PULSE £19.50 POST FREE
LASER-PULSE CHARGER — VARIABLE PULSE £24.50 POST FREE
LASER — VOLTAGE REGULATOR £3.25 POST FREE
ASSOCIATED REAR KIT TYRES £2.50 POST FREE
SANYO SELECTED CELLS (6 PACK) £16.00 POST FREE
LIGHTWEIGHT LEXAN BODY — C100 £5.50 POST FREE
LONG/SHORT BOSS PINIONS 9T, 10T, 11T, 12T, 13T £1.60 POST FREE
NOVAK MINI SERVO £27.50 POST FREE
KIMBRO SERVO-SAVER FOR NOVAK £1.90 POST FREE

SUPERCHARGE MODELS

29 CHURCH ST., ROMSEY, HAMPSHIRE, SO5 8BT.
Tel: (0794) 517403/517518

A. HOPKINSON LTD

ELECTRIC MODEL CARS

14-15 South Gallery, Exchange Street, Sheffield. (0742) 738208

WE ARE SOUTH YORKSHIRE'S LEADING STOCKIST OF KYOSHO SCORPION/BEETLE SPARES. SEND FOR OUR COMPLETE LIST!!

SC4 Lower arm set £3.95	SC27 Rear tyres pr. £6.75
SC5 Upper arm set £1.45	SC28 Front wheels £2.75
SC6 Upright set £3.05	SC29 Rear wheels £3.25
SC7 Knuckle arms £2.80	SC32 Scorpion body £6.25
SC8 Tie rod set £2.50	SC35 G'box drive joint £2.50
SC10 Front shocks £6.75	SC38 Spur gear £1.70
SC11 Rear shocks £7.00	SC39 Gear set 'B' £1.95
SC16 Coil over set £2.25	SC42 Rear sus. arms £4.45
SC17 Swing shafts pr. £3.35	SC44 Batt. connector 55p
SC18 Rear axles pr. £2.80	SC48 Beet. F/wheels £1.95
SC20 Drive washers 65p	SC49 Beet. R/wheels £2.70
SC22 R/C unit box £3.95	SC52 Beetle Body £11.95
SC26 Front tyres pr. £4.25	SC56 Differential £6.95

BUGGY MOTORS

M.G. Buggy Spec. ... £9.95
M.G. Std. Yokomo ... £8.95
M.G. Buggy Clubman £9.95
Tamiya 4x4 540S .. £8.50
Demon Yokomo £8.95
M.G. Mr Cool £2.10

1/12 KITS SPARES

'C' Car Conv. Kit £39.99
Demon MF1 Kit £34.50
Delta Super Phaser £68.50

Demon Yokomo Std. £8.95
M.G. Jerobee Std. ... £7.50
MRP 55 Std. £7.50

FULL RANGE OF SPARES

For 1/12th kits — Demon —
Alpha - Greeno - Associated
- Schumacher - Parma etc.

NEW RELEASES!!!

Futaba Magnum POA
Futaba Junior Mag. POA
Yokomo 1/10 4WD kit POA
Kyosho Tomahawk POA

S.R.M. RACING — AYK Distributors
140 WEST STREET, FAREHAM, HANTS.
TEL: (0329) 233945

1/12

Now in stock.
AYK Cyclone fully
independent
suspension car
£94.95

AYK 1/10
Super Trail £80.00

COMING SOON
AYK SIDEWINDER 1/10
THE ULTIMATE
OFF-ROADER
Price on Application

COMING SOON
AYK EXL 480K
CARPET RACER
Price on Application

SPARE'S 1/10
AYK Shocks long . £5.50
AYK Shocks short £4.40
Rear Tyres/wide ... £5.50
Front Tyres/wide .. £4.40
Baya Bison Body £10.75
Ford Pick-Up £10.75
We carry the complete range
of spares for the Super Trail.

OTHERS

GZ480 £19.00
GZ240 P.O.A.
GZ480B P.O.A.
Standard motor.
TX100 Supercharge £24.95
AYK GS1200 Selected
racing cell (7.2) P.O.A.

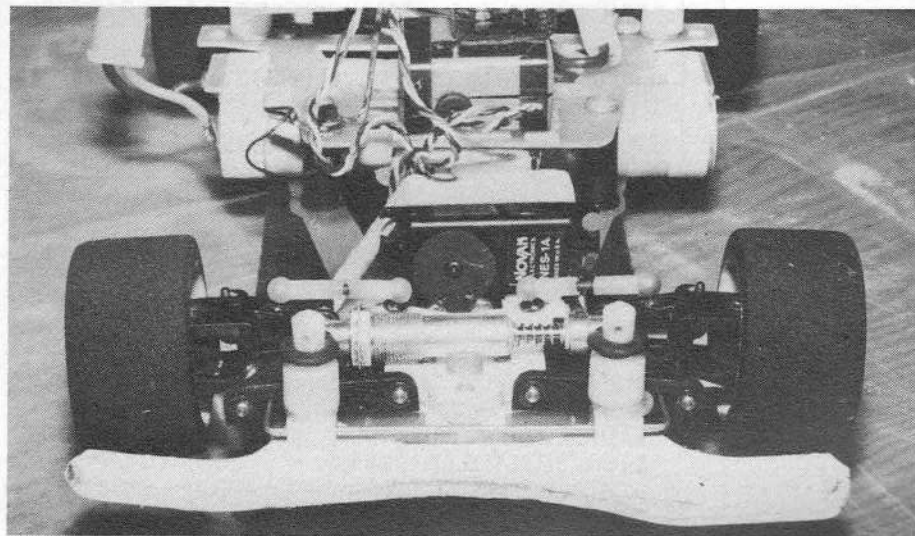
We also stock a range of
Parma goodies plus Demon
and Laser turbo speed cont.
..... £39.95

MOTORS INCLUDE

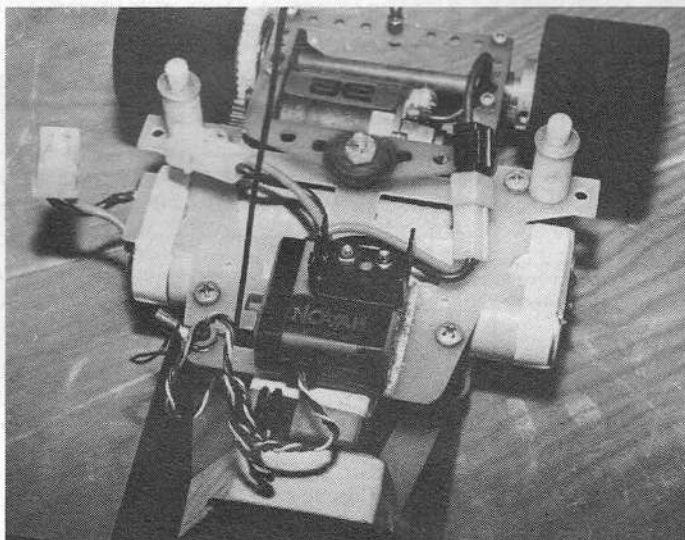
Buggy Spee £10.00
Buggy Clubman £10.00
MG Yoko £33.00

COMING SOON
AYK Racing Gear Box for
the Super Trail. This in-
cludes Ballraces tool steel
joints modified drive gears
for the upmost reliability
and performance. P.O.A.

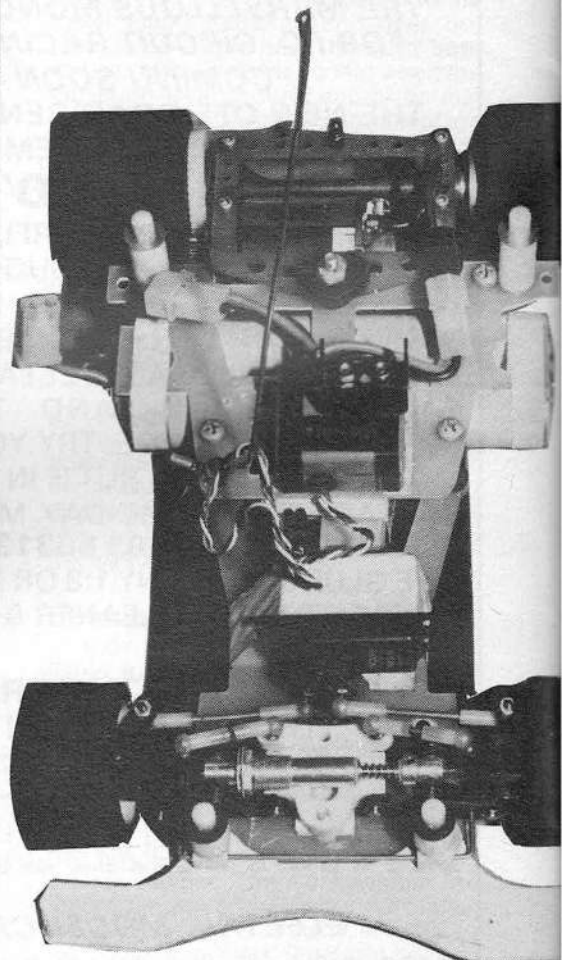
Racing Round-up



Above: the all-new Associated front-end. This latest development features a single mono-shock damper, single wishbone suspension and anti-roll bar. This well made and functional unit found little favour with Jimmy and Wayne Davis who resorted to their UK set-up. Micky Booth, however, bolted it on and drove to a third place in the final. Right: interesting new development from Novak electronics seen on Mike Toland's '12i.' This electronic speed controller uses transistors instead of relays and is half the size of its commercial rivals but double the price. A cost of over a £100.00 per unit was mentioned.



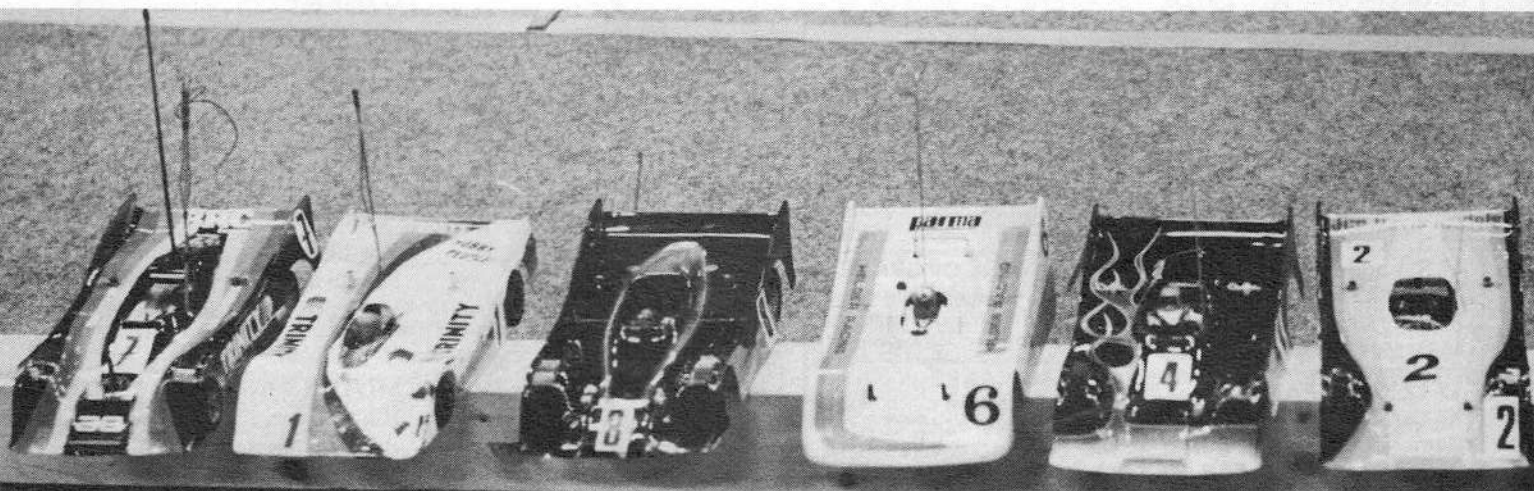
Below: general view of Mike Toland's '12i' car, motors and Ni-Cads were of course issued by Mike Reedy.



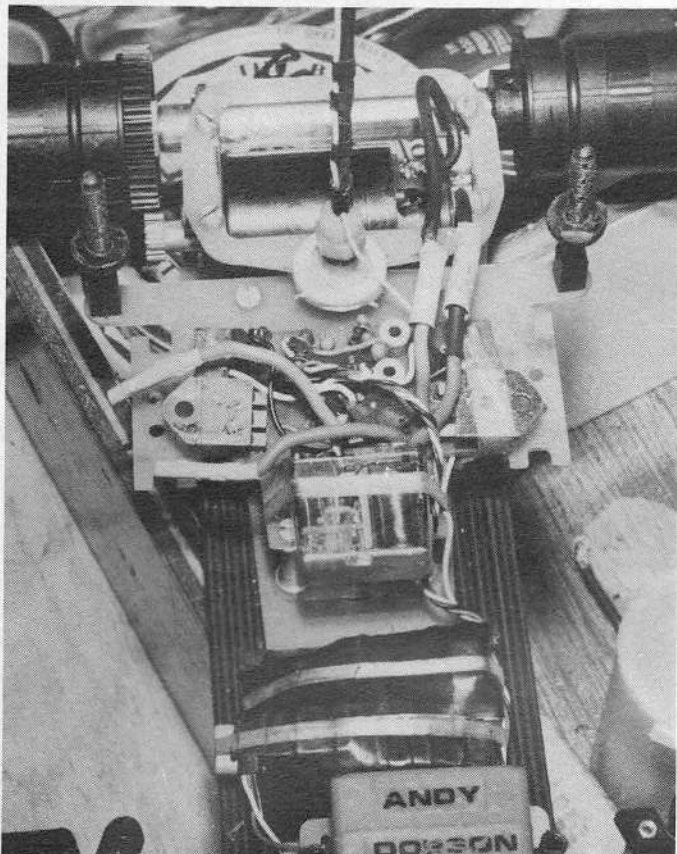
Above: despite the reliability of the Novak Speed Controller, Mike Toland changed back to his usual resistor style layout for the final.

The Danish 1/12th international event described by Lewis Eckett

Danish Slot



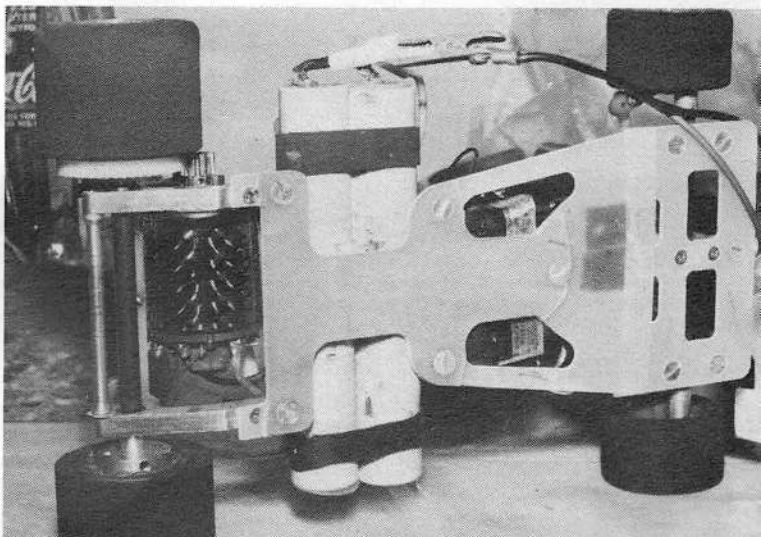
Below: Andy Dobson's 'C-Car' featured a re-styled 'Laser Turbo' Speed Controller built for him by Glyn Peglar of Force Electronics. The reverse facility is not included to save weight whilst the components were re-distributed to lower the CG. No reverse was of little hindrance to Andy as the car was seldom stuck on the course due to the use of boards instead of hoses. Andy also soldered in the motor (a new one for every run) so as to avoid and volts drop across the connectors. Sanyo OA cells provided the power again a new set for every run.



Right: the Trinity 'Tuna' charger uses a thermocouple to detect heat build in the cells, the voltage is pre-set and when the cells get hot the charger switches off.



Below: the Demon drivers, Grahame Davies and Bill Jones found that doubling the chassis thickness across the centre section was the only answer to the high grip problem.



zzler



THE DANISH International 'friendly' has taken place at Herning in Denmark for three years now. This year greater emphasis was placed on the event as the venue is the same as the World Championships to be held in August. Indeed many drivers believed that they would be driving around the actual world champs circuit, but this was not to be.

A strong representation from America was present with the usual Reedy/Associated presence of the Davis Brothers, Micky Booth (Euro-chimp), Mike Reedy and Mike Toland. Trinity Maestro, Ernie Provetti had made this journey to give Andy Dobson and Team Schumacher the backup they deserve and need. Of the rest, we had most of the top European drivers also in attendance plus, of course, a strong (numerically) Danish contingent. In all twelve British drivers made the trip although for many, the racing was the least enjoyable part.

The majority of the drivers used wintergreen to treat their tyres and the

subsequent grip available after practice and qualifying was very high. For many this was a deciding factor as regarding performance particularly the British drivers.

Nevertheless the usual faces made the running in qualifying with the eventual FTD time going to Jean Michel Fraize of France using an Associated 121 with Trinity Motor. Wayn Davis, last year's winner, qualified second fastest and these two went straight through to the final leaving the next 16 drivers to battle it out in the semi's.

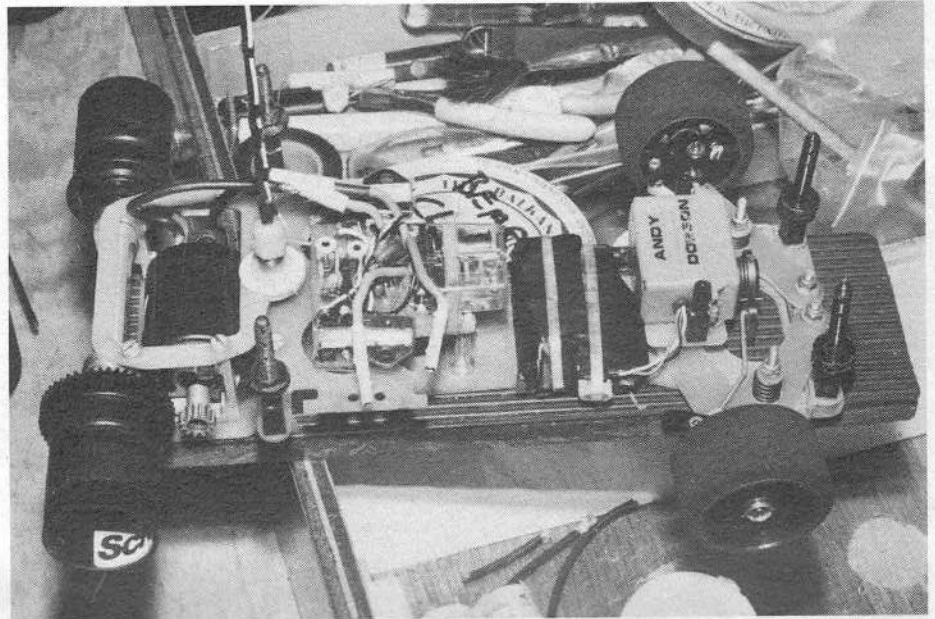
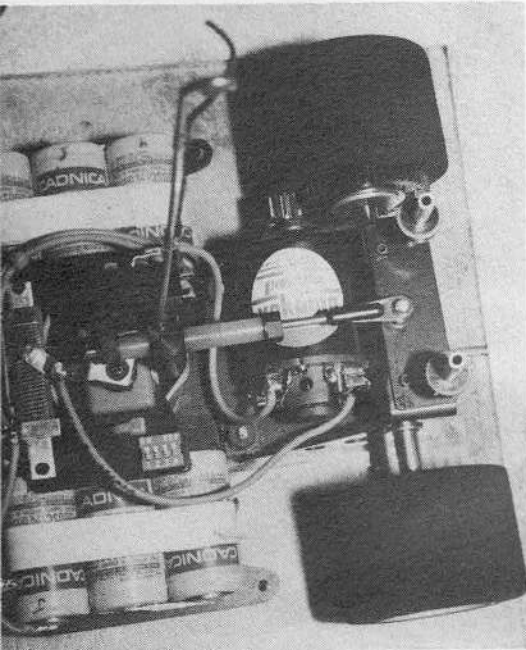
The fastest eight from both to qualify.

The A-final line-up displayed not only variety in nationality but also cars and motors. Andy Dobson after sweating it out in the semi, geared down for the final and outdrove first Jean Michel Fraize then Wayne Davis for the lead and ultimately victory.

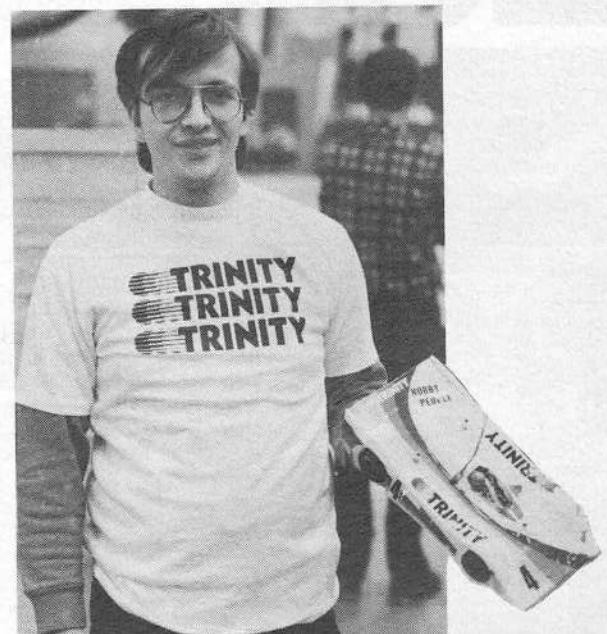
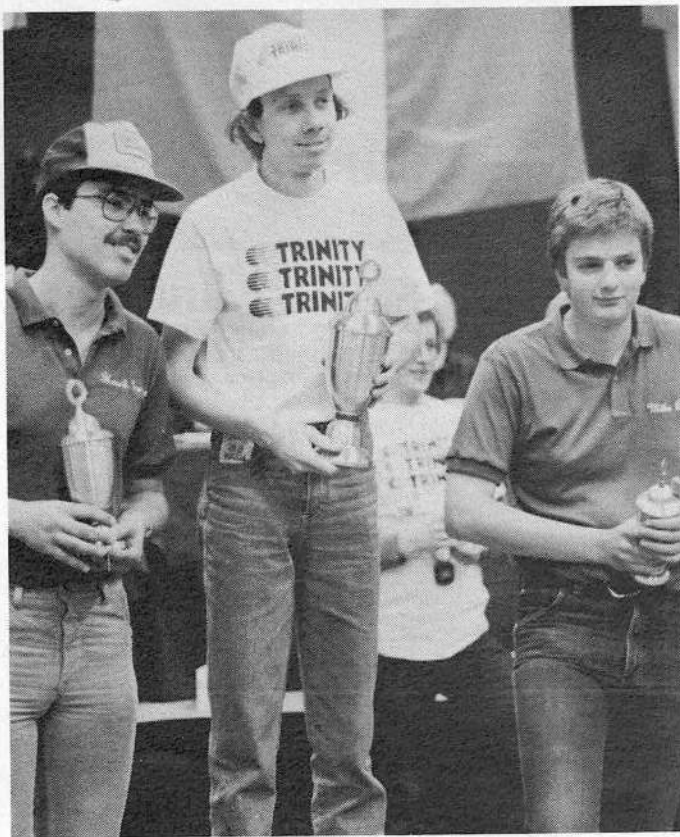
A triumph for British ingenuity (Cecil Schumacher's 'C'-car) and American horsepower (Trinity Motors) not to mention Andy Dobson's skill on the sticks.

Racing Round-up

Below: the Parma 'Panther' driven by works driver, Bud Bartos, sporting a Parma Yokomo motor, Bud also used the Parma 'Pulsar,' their own Yokomo hybrid motor. Unfortunately Bud's A-final challenge was cut short as a strong shunt early on separated chassis from Ni-Cads.



Above: Andy Dobson's 'C-Car.' Right: the winning trio of Ernie Provetti (left), Andy (centre) and Cecil Schumacher. This team look set for stardom in August.



Above: Andy Dobson tops the drivers' rostrum head and shoulders above Henrik Carstens (Associated team driver and Danish champion) with Micky Booth (Eurochamp) in third. Right: the French are coming! Jean Michell Fraize took FTD for the meeting although was not Trinity sponsored until the start of qualifying.

J. FAIRMAN RACING

TEL: DAY (0273) 720742

EVENING (07917) 4052



PARMA 1/10 OFF ROAD PRODUCTS
NOW IN STOCK

AUDI QUATTRO BODY CLEAR ONLY £10.95

BUGGY MOTOR HEAT SINK £5.99

ROD ENDS 150 RODS 6 FOR £3.50

PARMA SHOCKS (S.M. OR F) PAIR £13.95

COIL OVER SET FOR SHOCKS PAIR £6.95

DEMON SANYO NI-CADS STICKS £16.00

P&P 10% FOR 1/10 + 1/12 LIST SEND S.A.E.

J. FAIRMAN RACING

106 Coleridge Street, Hove, E. Sussex BN3 5AA.

L. G. MODELS

3 Pier Arches, Pier Approach, Western
Esplanade, Southend-on-Sea,
Essex SS1 2EH.

Tel: (0702) 617966

STOCKIST OF RADIO CONTROLLED CARS,
BOATS AND ACCESSORIES AT COMPETITIVE
PRICES. MAIL ORDER SERVICE.
ENQUIRIES WELCOME.

OPEN: Mon., Tue., Thurs. & Sat. 9.30 a.m.-5.30 p.m.
Friday 9.30 a.m.-6.30 p.m. Sunday 10 a.m.-1 p.m.
Closed all day Wednesday.

ALPHA TRACK PARTS

HAVE MOVED TO

11 Newarke Street, Leicester LE1 5SS

Tel: 559711 Ext. 212

NEW OMEGA — Superlight weight carpet car rolling
chassis 76-46 painted body, ballraces, servo-saver.
Fibre chassis and Shaker plates inc. mounts ... £18.50
Lightweight standard competition car available.
Torque Tube £15.21

New front
wheels



2 new bodies
Shadow, March Can-am
bodies

New
Damper
Plate

Super lightweight bodies,
Toj, Sckee, C100 plus
many more.

*Congratulations - Andy Dobson
winning Danish open champion-
ship, using latest Alpha light-
weight sckee.*

NEW! Porsche 956 £5.00 clear; £7.00 painted
Track Wash Tyre Cleaner (BRCA approved) 100ml £2.50
Super lightweight diff. £17.95
Sleeves 65p a pair
Sanyo Batteries £2.62 per cell

Buy direct from manufacturer or selected retail outlets.
Send S.A.E. for full new January price list.

THE FIRST AND LAST WORD IN CAR DESIGN



Exhibit or compete at
ScotModex 84
ENTER NOW!

This is the opportunity that modellers in
Scotland and the North of England have
been waiting for! ScotModex 84 runs from
the 21st to the 24th of September at the
Royal Highland Exhibition Hall, Ingliston,
Edinburgh and offers you the chance to
display your modelling skill. There are
Competition Classes covering every
modelling category — and we'd be pleased
to receive loan exhibits too. Send for your
entry form and full competition details today
to:-

CONEX Ltd, Joint Organisers ScotModex 84
46 Moray Place, Edinburgh EH3 6BQ
Tel: 031-225 5083

**The First Scottish
Models & Hobbies Exhibition**

Royal Highland Exhibition Hall,
Ingliston, Edinburgh
21-24 September

SCOOP PURCHASE!!!
£150,000 OF
SCALEXTRIC ACCESS.
CARS, TRACK,
BUILDINGS

TO CLEAR SAVE UP TO 60% ON MAKERS
LIST PRICE S.A.E. FOR FULL LIST.
e.g. CARS FROM £2.95

ALL CREDIT CARDS ACCEPTED.

SCALEXTRIC MAIL
65 VICARAGE ROAD,
WATFORD WD1 8CJ.
ALSO AT: 25 PARNIE ST., GLASGOW.

HEAVY DUTY NICAD BATTERIES

PENCELL 0.5Ah 75p (10 FOR £7.00); SUB-C 1.2Ah £1.20; BVY £1.45; HP11 (C SIZE) 2.0Ah £1.75; HP2 (D SIZE) 4.0Ah £2.20; PP3 £3.85; 6V SAFT PACK (5 CELL) 1.2Ah £7.00; 2.0Ah £11.00; 7.2V SAFT PACK/STICKS (6 CELL) 1.2Ah £8.00; 2.0Ah £13.00; 7.2V SAFT BVY PACK/STICKS (6 CELL) £10.00; 6V SAFT PACK 4Ah £15.00; 7.2V SAFT PACK 4Ah £18.00; FEW ONLY G.E. 3.6V STICKS 1.8Ah £3.50 EACH; G.E. 2.4V STICKS (2 CELL) 2.0Ah £2.00 EACH; 7.2V PLUG FITTED TO ABOVE PACKS 70p EXTRA; NICAD PACKS SUITABLE FOR TAMIYA CARS ETC., HIGH CHARGE/DISCHARGE CAPABILITIES. STATE CONFIGURATION REQD.

PRICES QUOTED FOR ANY OTHER PACK ON REQUEST.

TAMIYA SAND SCORCHER £65.00; SAND ROVER/HOLIDAY BUGGY £35.00; WILD WILLY £60.00; TAMIYA PACKS 6V £12.00; 7.2V £15.00; SLOW CHARGERS 6V OR 7.2V £5.00; 9V Tx CHARGER £5.00; Rx PACK 0.5Ah (SQUARE OR FLAT) £4.00.

POSTAGE AND PACKING ON ALL CARS £2.00.

SEND S.A.E. FOR COMPLETE LIST. PROMPT DESPATCH.

P&P 10% (5% OVER £10.00; FREE OVER £50 EXCEPT CARS)

A1 BATTERIES CO., P.O. BOX 103, 1 EXCHANGE STREET, STOCKPORT, CHESHIRE SK1 1AA.

ATTENTION ALL SLOT RACERS

INTERESTED IN SLOT RACING? THOUGHT IT DIED OUT YEARS AGO? WELL IT DID NOT DIE AND WON'T DIE ALL THE TIME THERE'S US TO SUPPORT THE WORLD'S FASTEST AND GREATEST INDOOR HOBBY. WE ARE THE U.K.'S ONLY MODEL SHOP COMPLETE WITH A CUSTOM BUILT 95 FOOT 4 LANE SLOT TRACK ON WHICH WE RACE EACH FRIDAY EVENING FROM 8 'TIL LATE. AS THE U.K.'S No. 1 SLOT RACING SUPPLIER WE BOAST THE MOST COMPREHENSIVE RANGE OF PARTS POSSIBLE WHICH CATERERS FOR THE HOME RACER RIGHT THROUGH TO THE PRO RACER. JUST LOOK AT THIS LIST OF NAMES: MURA, CAMEN, KOFORD, PRO-SLOT, PARMA, FAAS, ASSOCIATED, SPEED AND SPORT, CHAMPION, SONIC, TWINN K, OUTSIGHT, ALPHA, K + S, UNGAR, LIMPACH, M.R.R.C., S.C.D., BETTA, MG PRODUCTS AND OF COURSE OUR OWN RANGE OF PROFESSIONALLY MADE CHASSIS, READY TO RUN CARS, MOTORS, MOTOR PARTS, WHEELS + TYRES, BEARINGS, AXLES, ETC., ETC. SEND NOW A S.A.E. FOR YOUR FREE COPY OF THE MOST COMPREHENSIVE SLOT RACING LIST ANYWHERE.



ONE-O-ONE

12 THE LINKS, DOWNSVIEW, CHATHAM, KENT. Tel: MED 826410

LONG
LIVE
SLOT
RACING

FRED COULSON MODELS

(International Stand Off Scale Champion 1976-1978)

515 WELLS ROAD, HENGROVE, BRISTOL BS14 9AL.

Telephone: Bristol 716522

THIS MONTHS SPECIAL OFFERS

ELECTRIC OFF-ROAD CARS	R.M.R.	Our Price
Sand Scorcher	£89.99	£72.50
Sand Rover	£49.99	£39.99
Holiday Buggy	£49.99	£39.99
Willys Wheeler	£79.99	£67.00
Subaru Brat	£59.99	£48.00
Opel Ascona	£79.99	£67.00
Lancia Rally	£59.99	£48.00
Mardave Apache	£48.00	£45.00
2 Diff. Leopard	£149.00	£140.00
Columbia Mk. 2	£169.95	£159.95
84 PB Nova	£179.95	£159.95
Gherard PB Off-Roader	£235.00	£225.00
Mardave	£49.50	£45.00
Challenger	£99.95	£95.00
SG or Nova Starter and 12 volt 6 amp Hour Battery for only	£47.95	£39.95
Pencell Battery	90p each Sub C	£1.50 each D size
Picco Series 111 with or without SG Crank	£70.00	£65.00

OS21 Car Engines side and rear exhausts in stock. Piston and Liners to suit all car engines.
Postage and packing on all goods extra.

SHOP GUIDE

READERS PLEASE NOTE:
Due to soaring postal charges many retailers are unable to answer postal enquiries unless accompanied by a stamped addressed envelope.
★ Mail Order Welcome

CAMBRIDGESHIRE

CAMBRIDGE Tel: (0223) 67662
REN MODELS ★
30 MILL ROAD
Open: 9.00 a.m. - 5.30 p.m.
Monday-Saturday

KENT

CHATHAM Tel: (0634) 826410
ONE-O-ONE MODELS ★
12 THE LINKS, DOWNSVIEW
Open: 9.30 a.m. - 6.00 p.m. Mon.-Sat.
Late night Friday

DEVON

EXETER Tel: (0392) 35118
EXETER MODEL CENTRE LTD. ★
39 SIDWELL STREET
Open: 9 a.m. - 5.30 p.m.
Open 6 days a week

LANCASHIRE

BURY Tel: (061-797) 3450
ART BURLEY MODELS
MILLET STREET
Open: Mon., Wed., Thurs., Sat.
10.00am-6.00pm. Fri. 10.00am-
7.30pm. Closed all day Tuesday.

ESSEX

CHELMSFORD Tel: (0245)
RADIO ACTIVE (MODELS) 442164
100 MAIN ROAD, BROOMFIELD
Open: Tues., Wed., Thurs., Sat.
9.00am-6.00pm Fri. 9.00am-
7.00am. Closed Monday.

LONDON

CAMDEN TOWN Tel: 01-485
AERONAUTICAL MODELS 1818
39 PARKWAY NW1 ★
Open: 9.15 a.m. - 5.30 p.m. Tues.-Fri.
9.15 a.m. - 5.00 p.m. Sat.
Closed all day Monday

COLCHESTER Tel: (0206)
JIM'S MODEL CENTRE 572094
159 NORTH STATION ROAD
Open: 10-5.30 Mon.-Sat.
Closed Thursdays

PLAISTOW Tel: (01-474) 6171
PIT STOP MODELS
344 BARKING ROAD
Open: 9.30am-6.00pm. Mon.-Sat.
Late night Friday.

HORNCHURCH Tel: (0245)
RADIO-ACTIVE (MODELS) 442164
94 ARDLEIGH GREEN ROAD
Open: Mon., Tues., Wed., Thurs.,
Sat., 9.00am-6.00pm. Fri. 9.00am-
7.00pm.

ENFIELD Tel: (01-804) 7452
RED BARON MODELS LIMITED ★
497 HERTFORD ROAD
Open: 9.00 a.m. - 6.00 p.m. Mon.-Sat.
9.00 a.m. - 7.00 p.m. Friday

HANTS

EASTLEIGH Tel: 0703-617849
EASTLEIGH MODEL CENTRE ★
2E HIGH STREET
Open: 9.00 a.m. - 6.00 p.m. Mon.-Sat.
9.00 a.m. - 1.00 p.m. Wed.

★ Shops offering a mail order service are denoted in this Guide by an asterisk.

CLASSIFIED advertisements

ALL CLASSIFIED ADVERTISEMENTS MUST BE PRE-PAID.
Private and Trade rate 25p per word (minimum) charge £5.00. Box numbers £1.00 extra. Display Box rate £6.00 per column centimetres. (Minimum 2.5cm £15.00. Maximum 5cm £25.00).
Box replies to be sent care of Advertising Department, PO Box 35, Wolsley House, Wolsley Road, Hemel Hempstead, Herts., England. HP2 4SS.
All advertisements are inserted in the first available issue. There are no reimbursements for cancellations.

THE PEATOL LATHE



£120 including 3 or 4 jaw chuck. Milling attachment and other accessories available. Centre height 2 1/4". distance between centres 9 1/2".
Please send S.A.E. for full details.

Peatol Machine Tools, 19 Nightlow Road, Harborne, Birmingham B17 8PS. Price inc. VAT.

STRATFORD MODEL CENTRE

For all radio control goods and accessories.

Open Mon.-Sat. 9.30 a.m. - 6.00 p.m.
Closed all day Wednesday.

57 Ely Street (next to Harrison's Opticians),
Stratford on Avon, Warks.
Tel. No. (0789) 299228

MECCANO

SPARE PARTS

Sets and model building literature. Widest range and availability, free lists. Retail and Mail Order.

Access. Visa cards welcome.
M. W. MODELS "Everything Meccano"
4 Greys Road, Henley-on-Thames,
Oxon RG9 1RY. Tel: 0491 572436

LATHES

MIYIMATS COWELL'S
MYFORD TOYO ETC.

Also accessories from stock for all the above. S.A.E. for list. Please state which lathe. Credit cards welcome. 24 hour answerphone.

ALL MODELS ENGINEERING LTD.
91 MANOR WAY, RUISLIP,
MIDDX. Tel: Ruislip 74126

WANTED — Ready built model aircraft boats, yachts, cars, steam driven models, also engines, kits, radio control equipment, etc. If you are selling up. Tel Godalming 21425.

GUIDE TO SPECIAL INTEREST HOLIDAYS

— your passport to a new beginning. Special Interest Holidays are ideal for those people who 'have always wanted to but somehow never got round to it'. Now is the time to start. Get away from dull routine. Spend a few days in pursuit of your favourite subject or an entirely new craft. The Guide lists Special Interest holidays from Art to Yoga, Computing to Pottery. Tells where they are, how much they cost, what to take with you and what to expect when you get there. Over 150 centres offering 900 courses waiting to be discovered! Don't delay — get your copy today! At your Newsagent, Bookshop or £1.95 plus 25p postage from Popular Crafts, Wolsley House, Wolsley Road, Hemel Hempstead, Herts. HP2 4SS. ALT-T/C

SEE MODEL CARS IN ACTION

at the Show
that shows
you how



**Model Car
Racing, Model
Flying Displays,
Model Boating,
Trade Stands,
"How-to"
Demonstrations,**

**SPRING BANK
HOLIDAY WEEKEND**

.... AND LOTS MORE FOR ALL YOUR FAMILY AND FRIENDS

The Model Craft and Country Show is a must for all model car enthusiasts — but it has a lot to offer the rest of your family too; it's a great hobby holiday weekend in the country. There are 6 halls with trade stands and practical demonstrations, tracks, model exhibits, space models, model flying, model car racing, model railways, live steam tracks, model engineering workshops and instruction and the largest craft show in the country.

This is your chance to enjoy your own hobby and give pleasure to your family and friends at the show which is putting the emphasis on teaching visitors how to get the most from modelling, crafts and many other home hobby interests.



MAY 26TH-28TH

Adults £2 Children & O.A.P.'s £1

Refreshments, bars, snacks 9 am - 6 pm, daily. FREE Car Parking

SEE THE **EVER READY** MODEL CARS

CHAMPIONSHIPS
STONELEIGH
KENILWORTH WARWICKSHIRE

RALLY WITH TAMIYA

LANCIA RALLY

WITH RS380 MOTOR



AUDI QUATTRO RALLY

WITH RS540 MOTOR



EACH KIT FEATURES

- R/C COMPONENTS PROTECTED AGAINST WATER
- INDEPENDENT FRONT SUSPENSION
- SEMI-PNEUMATIC TYRES WITH REALISTIC TREAD PATTERN
- BALL JOINT STEERING SYSTEM
- RUGGEDLY CONSTRUCTED FOR LONG LIFE
- READY TO ASSEMBLE MODEL KIT 1/10 SCALE
- FORWARD AND REVERSE THREE STAGE SPEED CONTROL
- REQUIRE 2 CHANNEL 2 SERVO RADIO
- ACCEPTS 7.2V OR 6V BATTERY

1/10th SCALE
RADIO CONTROL
MULTI-PURPOSE
OFF ROAD
RACING
MACHINES

OPEL ASCONA 400

RALLY
WITH RS540
MOTOR



RIKO

RICHARD KOHNSTAM LIMITED

13-15a High Street, Hemel Hempstead, Herts.

